Interactive CardioVascular and Thoracic Surgery

INTERACTIVE CARDIOVASCULAR AND THORACIC SURGERY

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14.30-16.00
MAY 12, 2006 2ND CONGRESS DAY

1ST CARDIAC SCIENTIFIC SESSION
VALVES

C01 - 1

SOLID AND GASEOUS CEREBRAL MICROEMBOLIZATION AFTER BIOLOGICAL AND MECHANICAL AORTIC VALVE REPLACEMENT: INVESTIGATION WITH A MULTIRANGE AND MULTI-FREQUENCY TRANSCRANIAL DOPPLER

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Objective: Cerebral microembolization is a well recognized phenomenon following cardiac valve replacement but the relative proportion of solid and gaseous emboli is uncertain. Particulate microemboli are thought to be the most damaging. Using a multi-range multi-frequency transcranial Doppler ultrasound, we compared number and nature of microemboli in biological and mechanical aortic valve prosthesis recipients.
Methods: The middle cerebral arteries of 60 patients were monitored bilaterally with a new generation transcranial Doppler (Embo-Dop, DWL) which rejects artefacts online and automatically discriminates between solid and gaseous microemboli. All recordings were performed over a 30 min period one day before and at a mean of 5 days and 3 months following isolated aortic valve replacement with biological (30, group B) or mechanical (30, group M) prosthesis.
Results: Patients in group B were older with a mean age of 70.6±9.7 vs. 55.4±9.4 (P<0.005). Biological prosthesis recipients were all on aspirin (no warfarin); patients with mechanical valves were well anticoagulated with warfarin both 5 days and 3 months after surgery. None of the patients had solid microemboli preoperatively. Five days postoperatively, the median number (interquartile range) of cerebral microemboli, was 2 (0-8) and 10 (3-21) for total microemboli (P = 0.001) and 0 (0-2) and 3 (1-7) for solid microemboli (P = 0.002) in group B and M respectively. At 3 months, the median number (interquartile range) was 1 (0-2) and 10 (5-20) for total microemboli (P<0.001) and 0 (0-0) and 3 (2-6) for solid microemboli (P<0.001) in group B and M respectively. Solid microemboli accounted for 16% of the total microembolic load in group B compared to 31% in group M (P = 0.05) at 3 months.
Conclusion: Solid cerebral microemboli represent almost one third of the total cerebral microembolic load following mechanical aortic valve replacement and are detectable in the vast majority of such patients both 5 days and 3 months after surgery. Neurofunctional consequences of this phenomenon should be carefully assessed with novel reliable and reproducible methods.

C01 - 2

EXPERIENCE IN OVER 300 CONSECUTIVE PATIENTS USING A SHELHIGH AORTIC BIOPROSTHESIS: IS ENDOTHELIALIZATION RESPONSIBLE FOR RESISTANCE TO INFECTION ?

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Objective: The present study was performed to investigate the resistance to infection and degeneration of the Shelhigh SuperStentless aortic valve.
Methods: Since February 2001, 304 patients received a Shelhigh Super Stentless bioprosthesis. The mean age at implant was 73.7±8.4 years. Concomitant procedures were performed in 184 pts (65.9%), CABG in 113 pts (39.9%) and MVR 59 pts (20.8%). Patients were followed for complications and hemodynamics. Echocardiography was performed at discharge, 1 year and thereafter yearly.
Results: Operative mortality was 6.4%. The mean valve size was 24.2±2.2 mm. The effectiveness of the device was demonstrated by mean gradients (16.6±6.8 mmHg for size 21, 14.0±6.0 mmHg for size 23, 13.5±6.0 mmHg for size 25, 11.7±4.8 mmHg for size 27, 10.9±4.0 mmHg for size 29) at discharge. The mean pressure gradient at discharge was 13.6±6.0 mmHg, at 1 year 14.3±4.9 mmHg and at 4 years 11.1±3.8 mmHg. Freedom from structural deterioration was 100% at 4 years. Three valves were explanted for suspected endocarditis. None of the three exhibited evidence of degeneration or infection, but all were positive for Factor VIII immunoassay for the presence of endothelial cells. Conclusion: The results suggest that resistance to infection and degeneration of the Shelhigh SuperStentless heart valve may be related to the formation of endothelial cells on the valve following implantation. Additional studies are needed to confirm these findings.

C01 - 3

EXTERNAL AORTIC PROSTHETIC RING FOR TREATMENT OF DYSTROPHIC AORTIC INSUFFICIENCY

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Objective: Dilation of aortic annular base and sinotubular junction diameters participate in the mechanism of dystrophic aortic insufficiency (DAI). We suggest treating these lesions by the implantation of an external aortic ring (EAR).
Methods: Sixty patients were operated for DAI (degree of AI 2.5±1.3, sex ratio:3.6 men/1 woman, mean age: 57.2±14.7 years). Bicuspid valves were found in 4 cases (6.7%). Marfan syndrome was present in 15 cases (25%). All patients had a dilated aortic annulus (mean aortic annulus diameter 27.5±2 mm). In case of DAI with an aneurysm of the aortic root (53 patients), an external subvalvular aortic prosthetic ring annuloplasty was combined to the Remodeling technique. In case of isolated DAI (7 patients), a double sub and supra valvular prosthetic ring annuloplasty was performed.
Results: Dilation of the aortic annular base was present in all cases (mean aortic annulus diameter: 27.5±2 mm). Operative mortality was 3.3% (n = 2). Valve sparing was feasible in all cases but 2 (operative reproducibility: 96.5%). Conversion to mechanical valve replacement was related to inadequate indication in one case (atheromatous aneurysm), and to distortion of the valve geometry during reconstruction of the root in the other case. Mean diameter of the EAR was 26.9±2.7 mm, producing a significant reduction of the native aortic annulus diameter (20.2±1.8 mm), without a significant gradient (7.3±4 mmHg). Mean follow up was 14.3±4.4 months for aortic root aneurysm and 15.7±7.2 months for isolated DAI. No thromboembolic or hemorrhagic events were observed. In the aortic root aneurysm group, two patients were reoperated, respectively at 3 and 5 months postoperatively for progressive aortic regurgitation secondary to residual cusp prolapse (4%). No patients underwent reoperation after performance of a double sub and supra valvular aortic annuloplasty. Echographic data, obtained at the last clinical follow-up, evaluated residual aortic regurgitation inferior or equal to grade I in 96% of the patients (52) and equal to grade II in 4% (2).
Conclusion: The implantation of an external aortic prothetic ring is a simple and reproducible technique with short term efficiency to treat DAI. In order

to evaluate this approach a prospective randomized multicenter open trial is about to be proceeded comparing this aortic valve sparing procedure with current mechanical aortic valve replacement.

C01 - 4

SURGICAL CORRECTION OF MIDVENTRICULAR OBSTRUCTION IN HOCM PATENTS BY OUR METHOD

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Objective: In some HOCM patients the level of obstruction may be in the mid-left ventricular cavity rather than subaortic. In addition, mid-ventricular obstruction may be associated with the subaortic obstruction. The classic Morrow technique does not allow to perform the complete resection of the muscular bar at the midventricular part of the septum.
Methods: The presented excision of the asymmetrically hypertrophied area of the interventricular septum (IVS) causing midventricular obstruction is made from conal part of right ventricle in middle part of IVS transversely and anteriorly of the moderator band but not through the whole thickness of IVS, that is without penetration into the left ventricular cavity. This excision of IVS implies avoiding the damage of His bundle. 39 patients with mid ventricuar obstruction (mean NYHA class-3.3) were operated on using this technique. Ages ranged from 12 to 56 years (mean 33.2). The follow-up period was 38±5 months.
Results: Significant symptomatic improvement (mean NYHA class-1.3) was noted postoperatively. The mean echocardiographic intraventricular gradient in left ventricle (LV) decreased from 93.9±14.7 to 10.5±7.2 mmHg (P<0.001). Echocardiographically determined septal thickness in the middle part of IVS was reduced 28.7±7.5 vs. 15.2±4.1 mm (P<0.001). Follow-up echocardiography showed reduction of left atrial size from 47.8±7.2 to 38.5±6.3 mm. Sinus rhythm without block of His bundle right branch was noted in all patients after surgery. With this technique, perioperative and postoperative mortality was 0%.
Conclusion: This method is effective and safe technique for surgical correction of severe hypertrophic cardiomyopathy and advisable use in cases of LV midventricular obstruction.

C01 - 5

CORRECTION OF LEAFLET PROLAPSE IN VALVE-PRESERVING AORTIC REPLACEMENT FOR AORTIC ROOT ANEURYSM IN PATIENTS WITH BICUSPID AORTIC VALVE

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Objective: Aortic root aneurysms are not rare in patients with bicuspid aortic valve, but valve-sparing operations to treat them remain challenging.
Methods: From March 2001 and October 2005, 50 patients were treated by a valve-sparing aortic replacement with valve reimplantation. Between these 15 cases of bicuspid aortic valve were noted. The mean age was 51±10 years (from 37 to 64 years) and the mean diameter of the ascending aorta was 64±15 mm (from 50 to100 mm). An aortic regurgitation grade III or IV was present in 55% of the cases due to a prolapsed bicuspid aortic valve and concomitant aortic dilatation. In all these cases a reconstruction of aortic valve was necessary by: triangular resection, shaving of free edge, placation of free edge and reinforcement of the free edge by a 7/0 Gore Tex running suture.
Results: All patients underwent valve repair, remodelling of the aortic root (reimplantation technique) and replacement of the ascending aorta. A peroperative transoesophageal echocardiography showed a satisfactory surgical result (a trivial AI in all cases). All patients survived the operation and were discharged after a hospital stay of 10±3 days. All patients were alive at follow up (mean 2.5 years). The echocardiography showed an aortic regurgitation less than grade II in 13 patients. Two patients have a mild grade II aortic regurgitation which stayed stable during follow up. Any valve related complication or reintervention was not necessary during the follow up.
Conclusion: Surgical correction of leaflet prolapse in combination with proximal aortic replacement (valve-sparing with valve reimplantation) is feasible with good results. Repair of prolapse appears a beneficial addition to valve-preserving surgery.

C01 - 6

RECONSTRUCTION AFTER COMPLETE POSTERIOR MITRAL VALVE ANNULUS DECACIFICATION

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Objective: Mitral valve (MV) annulus calcification is frequently observed in many etiologies of MV diseases. It has a propensity to localize on posterior annulus and may invade deep trough myocardium. In some patients, decalcification and annulus reconstruction is mandatory to achieve continent repair or to implant MV prosthesis or prosthetic ring.
Methods: We have retrospectively analyzed 18 patients who underwent complete posterior MV annulus decalcification associated to MV repair (12) or replacement (5). Etiologies of MV disease were degenerative (9), postrheumatic fever (3), acute endocarditis and Barlow disease (3). Decalcification was performed from commissure to commissure in all patients and their annulus was reconstructed with pledged “U” stitches, bovine pericardial atrio-ventricular patches or “sliding atrioplasty”.
Results: Operative mortality was 16.7%, one patient died in operative room from atrio-ventricular groove rupture and 2 died from congestive heart failure. One of those had needed reoperation for early failure of MV repair. During follow-up (mean: 30±24 months; range: 3 to 76), 6 patients died, 4 from cardiovascular causes. Three patients were reoperated on because of late failure of MV repair (1), acute endocarditis (1) or haemolysis (1). All survivors (9) were in NYHA I (7) or II (2), no to trivial mitral regurgitation was present in all MV repair (7), one patient have a paravalvular leak grade II. At 3 year, overall survival was 48±27%, freedom from MV reoperation was 69±27%.
Conclusion: After deep and complete decalcification of posterior MV annulus both MV repair and replacement are feasible. Procedure-related mortality is acceptable. However, decalcification always make surgery more complex and should be therefore balanced, in old patients and patients with heavy comorbidities, with other less aggressive techniques of repair that leave calcification behind.

C01 - 7

MITRAL VALVE REPAIR WITH THE NEW MITROFAST® REPAIR SYSTEM

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Objective: Although results in mitral valve repair are superior to those in valve replacement, repair is still an underutilized procedure. Mitral valve repair is technically challenging, requires a longer learning curve, and the outcome is operator and institution dependent. We present initial clinical experience with the novel device designed for easier, faster and more reproducible mitral valve repair.
Methods: The MitroFast® repair system (Shelhigh Inc., Union, NJ, USA) is comprised of a functional sizer and a tissue mitral repair ring with a rigid extension in the shape and position of posterior leaflet. The ring design presents a coaptation surface for the closure of anterior leaflet, producing a “hemivalve”, which is in effect similar to conventional posterior leaflet immobilization concept. Between October 2004 and October 2005 15 patients underwent mitral valve repair utilizing the MitroFast system. Mean patient age was 61.5 years and mean EuroScore was 3.7. Thirteen patients had a degenerative isolated posterior leaflet prolapse, 1 patient had ischemic posterior leaflet tethering and 1 patient rheumatic valve disease causing massive mitral regurgitation (MR). Three patients underwent concomitant coronary artery bypass grafting.
Results: Mean aortic cross-clamp time was 77±25 min. There were no perioperative deaths. After repair the average peak transmitral gradient was 6.5 mmHg. There was no postoperative MR in 8 patients, trivial MR in 5 patients and mild MR in two 2 patients at 1, 3 and 6 months, respectively. All patients were in NYHA functional class I. Size of the left ventricle (LV) and left atrium (LA) was determined by echography. Mean preoperative LA size was 5.0±0.7 cm vs. 4.4±0.9 cm at 1 month postoperatively, and mean LVEDd preoperatively was 5.7±0.5 cm vs. 5.2±0.5 cm postoperatively during the same period.

Conclusion: Initial clinical experience demonstrated the MitroFast® system to be an effective tool for reproducible mitral valve repair with a short learning curve. The MitroFast® system simplifies mitral repair in complex pathology of the posterior leaflet, thus enabling more patients to benefit from this procedure. Further clinical investigation is necessary to determine the proper indications for the use of this new repair system.

C01 - 8

INFLUENCE OF 19-MM AND 21-MM SIZE PROTHESIS ON PATIENTS OUTCOME AFTER AORTIC VALVE REPLACEMENT

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Objective: The aim of this study was to asses the influence of the prothesis-size on the patient outcome following aortic valve replacement (AVR).
Methods: 1639 AVR Patients, 263 patients received a size 19 mm prothesis (Group 1; 49 biological and 214 mechanical prothesis) with a mean age of 69.73 years and 709 patients received a size 21 mm prothesis (Group 2; 228 biological and 446 mechanical prothesis) with a mean age of 67.56 years. A total of 380 concomitant procedures were performed (Gr.1 *n* = 125; Gr.2 *n* = 255). 667 patients received a prothesis size > 21 mm.
Results: The 30 day mortality in group 1 and 2 was 10.3% (27 patients) and 5.5% (39 patients) respectively. Where as the late mortality for group 1 and 2 was 8.7% (23 patients) and 8.6% (61 patients) respectively. The 5 year survival in group 1 and 2 was 79% and 82.9% respectively (P = 0.2). In Multivariate analysis the strongest independent predictors for mortality were urgent/emergency operations (P = 0.0053); concomitant procedures (P = 0.001); lower ejection fraction <40% (P = 0.03) and age >70 years (P = 0.03). Relative risk of mortality was increased 2.1 fold (95% confidence interval, 1.3–3.1) in patients with concomitant procedures; 2.6 fold (1.33- 5.17) in patients with urgent/emergency operations. Only 4 patients in group 1 and 11 in group 2 had a severe prothesis–patient mismatch (<0.65 cm^2/m^2).
Conclusion: Aortic valve replacement with prothesis sizes 19 and 21 mm is per se not a risk-factor and show similar long-term results.

C01 - 9

TORONTO SPV VALVES CALCIFY LESS THAN PORCINE AND KANGAROO AORTIC VALVE SCAFFOLDS IN SHEEP

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Objective: An engineered aortic valve would theoretically be capable of growth and like a normal native aortic valves it would maintain its durability by regenerating its extracellular matrix and require no anticoagulation therapy in recipient. A major limitation of currently available bioprosthetic valves is their propensity to calcify. The limited durability of glutaraldehyde fixed bioprosthetic valves has been attributed to altered mechanical properties, antigenic properties of the cells and calcification potential of cell membrane. Whether or not a tissue engineered valve will be sufficiently endowed to prevent calcification of its components is unkown. At present, in tissue engineering, decellularized xenogenic scaffolds are implanted, either after invitro seeding of cells or unseeded. This study examines the calcification potential of xenogenic biological scaffolds from two species, namely pigs and kangaroos in the sheep model and compared them to similarly sized Toronto SPV valves.
Methods: Porcine (n = 3) and kangaroo (n = 3) aortic valve matrices prepared by an enzymatic/detergent decellularization procedure were implanted in the right pulmonary position of six juvenile sheep. For comparative purposes Toronto SPV (n = 3) valves of similar sizes were similarly implanted in three sheep. Valves and matrices were explanted after 120 days and examine macroscopically and histologically (H&E and Von Kossa stain) and electron microscopically. Calcium was quantatively determined by spectrometry.
Results: Mean calcium content of Toronto SPV valves was (3.0 mg/gm) compared to porcine (104.7 mg/gm) and kangaroo (32.4 g/gm) matrices and confirmed histologically. Electron microscopic sections showed direct association of calcification with the collagen matrix. The pattern of calcification in matrices was consistent.
Conclusion: Toronto SPV valves calcify significantly less (P<0.005) than the tested biological matrices irrespective of species origin. Xenogenic scaffold calcification is influenced by species. Biological scaffolds are adversely antigenic.

C01 - 10

THE NICKS - NUNEZ POSTERIOR ENLARGEMENT IN THE SMALL AORTIC ANNULUS: IMMEDIATE - INTERMEDIATE RESULTS

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Objective: The Nicks - Nunez procedure was performed in fifteen patients and the immediate - intermediate results are reported.
Methods: Fifteen women, 40-76 years old, underwent AVR using the Nicks - Nunez procedure, (EAVO 0.7+0.2 cm^2). We used pericardium (n = 4) and synthetic graft (n = 11). Follow-up was 5 to 120 months (med. 61.5 months).
Results: There was no operative or hospital mortality. Serial follow-up echos showed statistically significant improvement in LVIVS thickness (16.5 + 1.3 mm, vs. 14.3 + 1.7 mm, P<0.01), LVPWT thickness (16.7 + 1.4 mm vs. 14.5 + 1.8 mm, P<0.01), LV mass/gr (415+33 vs. 388+41, P<0.01), peak gradient (98+10 mmHg vs. 48+7 mmHg, P<0.001), mean gradient (58+10 mmHg vs. 22+8 mmHg, P<0.001). Functional AVO was 1.4+0.5 cm^2. EF and LVEDD were unchanged.
Conclusion: Immediate and intermediate results reveal the safety of the procedure and the significant functional and anatomical LV improvement Female patients seem to be the usual candidates for this procedure.

14.30-16.00
MAY 12, 2006 2ND CONGRESS DAY

2ND CARDIAC SCIENTIFIC SESSION
CORONARY

C02 - 1
THE EFFECT OF LEVOSIMENDAN ON ATERIAL SPASM IN REVASCULARISATION WITH ARTERIAL GRAFTING
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Objective: In younger CABG patients total arterial revascularisation should be aspired. Surgical harvesting of arterial conduits causes arterial spasm and a reduced blood flow resulting in poor perioperative results. We evaluated the effect of a novel Ca2+ sensitiser Levosimendan on in vivo radial artery (RA) and internal thoracic artery (ITA) flow and set this data in relation to observed hemodynamic changes.
Methods: Prospective, randomized, double-blind, clinical trial, statistical power stratification for 15 patients per group.45 patients (32 males and 13 females) undergoing primary CABG, mean age of 58±3 years were enrolled in this study and randomized to 3 groups receiving a loading dose of Levosimendan (12 µg/kg/min), Dobutamine (5 µg/kg/min) and physiologic saline as control group (ml) over 10 min. RA and ITA flows (in ml min-1), aortic (AP), pulmonary artery (PAP),pulmonary capillary wedge (PCWP) pressures (in mmHg) and heart rates (HR in beats min-1) were measured at baseline (T0), 5 (T1) and 10 min (T2) after test drug administration.
Results: Flows in ITA (15.4-22.4-30.1 vs. 19.6-21.5-22.6; P<0.000001*) and in RA (13.14-21.21-29.9 vs. 13.9-15.1-16.1; P<0.000001*) significantly increased in Levosimendan vs. Dobutamin patients. Hemodynamics remained absolutely stable in Levosimendan and control groups, a statistically significant deterioration was found in Dobutamin patients.
Conclusion: Our in vivo study shows that during surgical harvesting, Levosimendan causes higher flows comparing to Dobutamin in arterial grafts used for CABG. Ca2+ sensitiser evolve a strong antispasmatic effect without causing negative haemodynamic changes in CABG patients.

C02 - 2
CORONARY ARTERY BYPASS GRAFT SURGERY FOLLOWING ACUTE MYOCARDIAL INFARCTION: EFFECT OF TIMING ON SURVIVAL
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Objective: Timing of coronary artery surgery (CABG) following myocardial infarction (MI) remains controversial. Varying lengths of time after MI to allow myocardium to recover, before CABG, have been advocated. We examined the effect of timing of CABG following an MI, on survival.
Methods: We analysed 7561 consecutive patients undergoing CABG between April 1997 and March 2004. Patients were stratified into four groups: no MI (n = 4142), MI<1 month (n = 196), MI 1-3 months (n = 177), and MI>3 months (n = 3046). Logistic regression and Cox proportional hazards analysis were used to adjust in-hospital and long-term mortality for differences in case-mix. Mortality adjusted for age, sex, body mass index, prior CABG, ejection fraction, extent of coronary disease, left main stem stenosis, priority, and co-morbid conditions (diabetes, respiratory disease, peripheral vascular disease, renal failure).
Results: Patients with recent MI have poorer left ventricular function, and more extensive coronary disease and co-morbidity. Nine patients had CABG within 24 h of MI; 3 of whom died in-hospital (33.33%). Crude in-hospital mortality was as follows: no MI 1.9% (reference), MI<1 month 8.2% (OR 4.6; CI 2.6-8.1; P<0.001), MI 1-3 months 5.1 (OR 2.8; CI 1.4-5.7; P = 0.003), MI>3 months 2.6 (OR 1.4; CI 1.0-1.9; P = 0.042). Adjusted in-hospital mortality was as follows: no MI 2.1% (reference), MI<1 month 3.7% (OR 2.3; CI 1.2-4.6; P = 0.018), MI 1-3 months 4.3 (OR 2.6; CI 1.2-5.6; P = 0.017), MI>3 months 2.4 (OR 1.2; CI 0.8-1.7; P = 0.31). Adjusted long-term survival for patients alive at hospital discharge was not significantly different between the groups.
Conclusion: After adjusting for patient characteristics, patients with an MI within 3 months prior to CABG are at a substantially increased risk of in-hospital death. These data support delaying CABG surgery during the first 3 months after MI if it is clinically feasible. Timing of an MI prior to CABG has no affect on survival after hospital discharge.

C02 - 3
RESULTS OF CORONARY ENDARTERECTOMY AND CORONARY ARTERY BYPASS GRAFTING FOR DIFFUSE CORONARY DISEASE
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Objective: Coronary endarterectomy with CABG for diffuse coronary artery disease is an important tool in cardiac surgery, because the number of patients with severe coronary artery disease continues to increase. This procedure has been associated with increased morbidity and mortality. We evaluated our institutional experience to examine its safety and efficiency for diffuse coronary artery disease.
Methods: From January 2001 to July 2005 adjunctive coronary artery endarterectomy was performed in 41 consecutive patients. Overall, endarterectomy was performed on 55 vessels, involving LAD, RCA, Cx. Different ways of artery reconstruction and myocardial protection were used. The shortterm results were compared with concurrent series of conventional CABG.
Results: The perioperative infarction rate was 7.3% in territory supplied by the endarterectomized vessel and 4.2% in isolated CABG group (P = 0.03). There were no myocardial infarctions when simultanious ante-retrograde cardioplegia was used. There was no hospital mortality in the coronary endarterectomy group. The majority of operations - 31 (75.6%) were performed with cardiopulmonary bypass, and 10 (24.4%) with off-pump technique. Mean number of bypass grafts per patient did not differ between patients with and without additional endarterectomy, and were 3.9±1.2. Clinically, 94% of patients in the group of endarterectomy were angina free, and 89% had no symptoms of heart failure at the time of follow-up.
Conclusion: These results demonstrate that coronary endarterectomy is comparable with conventional CABG, safe and can be used effectively to achieve complete revascularisation in selected patients with diffuse coronary artery disease.

C02 - 4
ENDOSCOPIC RADIAL ARTERY HARVESTING: A SIMPLIFIED TECHNIQUE COMBINING A RESTERILIZABLE RETRACTOR WITH DIFFERENT VESSEL SEALING SYSTEMS
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Objective: Several vessel sealing systems have been already successfully tested in other surgical fields and could be potentially useful also for endoscopic radial harvesting(ERAH). We therefore sought to investigate whether such devices could be used along with a resterilizable retractor for endoscopic vein harvesting.
Methods: Fifteen patients underwent ERAH combining the Storz Endoscopic Vein Retractor, a stainless steel resterilizable dissector, and 3 different vessel sealing systems: the Harmonic Scalpel (Ethicon Endosurgery) in 12 patients, the Starion forceps (Starion Instruments) in 2 patients and the EnSeal system (SurgRx) in 1 patient. While the Harmonic Scalpel adopts ultrasonic energy for cauterization, the Starion device has an heating element at the tip of the instrument allowing a process of denaturation of the protein molecules and fusion of layers within the tissue. Finally, The EnSeal™ System incorporates a nanoscale bipolar radiofrequency control system and a high compression jaw: it allows the adjustment of tissue-dynamic energy delivery at the electrode-tissue interface. A 2 cm longitudinal incision of the forearm is performed at the wrist crease; the distal part of the radial artery is dissected under direct vision by means of the vessel sealing system. Once enough space is created, the Storz Retractor is advanced towards the antecubital fossa while fascial division is carried out. A careful dissection around the pedicled radial artery is then performed just by means of the vessel sealing systems. A 1.5 cm counterincision is then performed near the antecubital space for proximal division of the conduit.
Results: Mean harvest time was 54±25 min (range 35-100 min). No bleeding requiring conversion to the open technique was observed during all procedures. Smoke production was almost absent with the EnSeal and the Starion system. The radial artery could be harvested full length without any macroscopic damage. No charring or sticking was observed over the arterial pedicle when the EnSeal system was used, while a considerable evidence of charring was noted with the Harmonic Scalpel. No macroscopic spasm of the radial artery occurred. All patients did not suffer of any neurological

impairment, vascular compromise or haematoma to the hand. No wound compication was reported.
Conclusion: The development of minimally invasive harvesting techniques requires new technology for vascular control of side branches. Despite the use of adapted instruments (i.e. the Endovein Retractor), ERAH was safe and feasible with different vessel sealing systems and a resterilizable retractor. Such cost-effective technique may be further improved once more dedicated instruments will be developed.

C02 - 5
EARLY EXTUBATION AND FAST TRACK MANAGEMENT IN ELDERLY CORONARY ARTERY BYPASS SURGERY PATIENTS
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Objective: In cardiac surgery shorter hospital stays and decreased costs can be reached by early extubation and fast-track management protocols. The feasibility of such protocols in elderly patients is still discussed controversially.
Methods: We analyzed 600 consecutive patients undergoing CABG. 372 patients (62%) underwent early extubation, defined as extubation within 6 h postoperatively (group e). In the early extubated group elderly patients of at least 70 years (n = 150, mean age 75.1 years) were compared with younger patients (n = 222, 61.4 years).
Results: The mean length of stay (LOS) in hospital in group e was 9.1 vs. 13.3 days for patients who underwent later extubation (P<0.01). The hospital mortality rate was comparable between the older and the younger group of patients (2.34% vs. 2.19%). Reintubation rate was negligible in both groups of patients. Older patients had a significantly higher incidence of postoperative atrial fibrillation (30.5% vs. 22.5%). We found a shorter LOS in hospital among the younger patients (8.5±1.1 vs. 10±1.4 days, P<0.05), although the LOS on ICU was similar (old: 31±6 vs. 27±4 h, P>0.05). In group e we could differ between immediate extubation (before ICU) and extubation in the following 6 h. The immediate extubation could be correlated to the most uncomplicated postoperative courses among all early extubated patients.
Conclusion: The results confirm the possibility of early extubation among elderly patients undergoing CABG procedures, in selected cases even in the operation theatre. Although they have more comorbid conditions, an early extubation may result in a shortened LOS in hospital.

C02 - 6
CABG FOR LEFT MAIN CORONARY DISEASE: LONG TERM FOLLOW UP
Glock Y., Puech J., Leobon B., Roux D., Dalous P., Fourcade J., Fournial G.
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Objective: Appreciation of the long term follow up of the CABG for Left Main Coronary Disease operated on from 1995 to 1998 in the same Institution.
Methods: Retrospective study of 250 consecutive patients operated on CABG, with an average age of 67±9.6 years. INDICATIONS : 80.4% (201) had unstable angina,14.8% (37) had a NYHA dyspnea. Previous myocardial infarction was present in 145 patients (58%) and the infarction was recent (<30 days) in 26% of the cases (65).10.8% (27) had critical preoperative cardiac failure. The E.F. was <50% in 17.2%.19.4%(26) were operated on emergency basis. and 41.1%(113) during the week following the diagnosis. In 44% the Parsonnet score was over 10(110). Revascularisation was made with 2.56±0.77 anastomosis per patient. A cohort of 233 living patients was completely follow up during 6 years and 93 of them during 8 years studying mainly the Major Cardiac Event (MaCE): cardiac death, infarction and new revacularisation.
Results: The actuarial survival rate without cardiac death was 91.1%, 83.3% and 73.3% respectively at 1, 5, 8 years. According to the univariate analysis, predicting factors of long term MaCE were age over 75 years (P = 0.023) and pre operative heart failure (P = 0.013). The multivariate analysis shows that the heart failure and the age were independant predictors factors of MaCE with a respective risk of 1.66 and 1.92.
Conclusion: According to the international guidelines, the Left Main Coronary Disease schould be treated by CABG. Nowadays, the interventional cardiologists attempt to treat this lesion by stenting. This study confirms the efficiency and stability of the surgical treatment during the time with a low rate of late post-operative MaCE (1.5 to 2.5% per year), identifiying to independant risk factors: the age over 75 and pre operative heart failure.

C02 - 7
COMPLETE MYOCARDIAL REVASCULARIZATION THROUGH A NON STERNOTOMY APPROACH
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Objective: Myocardial revascularization through a non sternotomy approach (left anterior small thoracotomy) is mostly used to revascularize left anterior descending coronary artery (LAD) and its branches. We report our experience of complete off-pump arterial myocardial revascularization for three vessels disease through this approach.
Methods: The technique consist of left internal mammary artery (LITA) and radial artery harvesting using a minimally invasive video assisted procedure. Through a small anterior thoracotomy (6.5±1 cm) a composite Y graft between LITA and radial artery is performed. Using Medtronic Octopus and Starfish NS (non sternotomy) respectively through the seventh intercostals space on the anterior axillary line and a subxiphoid approach, anterior, lateral and posterior target coronary artery are exposed and stabilized.
Results: From September 2005 6 pts underwent complete off-pump arterial myocardial revascularization through a non sterrnotomy approach. Mean number of graft per pt was 2.3±0.5. The LITA was always used as a single graft on the LAD, while the radial artery was used in sequential fashion three times on marginal branches and four times on the posterior descending coronary artery. Mean operation time was 310±20 min and the hospital length stay was 6.1±0.9. There were no perioperative mortality and myocardial infarction.
Conclusion: Complete arterial myocardial revascularization through a non sternotomy approach is feasible using specific designed instruments for myocardial stabilization and exposure. The procedure requires confidence with OPCAB surgery and composite arterial Y graft.

C02 - 8
DOES PREEMPTIVE STELLATE GANGLION BLOCKAGE INCREASE THE PATENCY OF RADIAL ARTERY GRAFTS IN CORONARY ARTERY BYPASS SURGERY
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Objective: We aimed to evaluate the role of preemptive stellate ganglion block on preventing radial artery spasm and increasing radial artery graft patency in patients undergoing off pump coronary artery bypass surgery.
Methods: In this prospective study, 100 patients were randomly divided in two equal groups (n = 50). In group A, stellate ganglion block(SGB) was achieved by 10 ml of Ropivacaine and in group B, SGB was not performed. Radial artery blood flow was measured preoperatively and intraoperatively. Postoperative clinical determinants (S-T elevation, use of inotropic agents, incidence of atrial fibrillation) were recorded. Early coronary angiography was performed. All the data was compared between the groups.
Results: According to blood flowmeter measurements, the radial artery blood flow was significantly found to be increased in patients with SGB. The incidence of atrial fibrillation, need of inotropic agents and S-T elevation was found to be decreased in SGB group. Angiographic intervention revealed that the incidence of graft spasm was also found to be lower in SGB group.
Conclusion: We conclude that preemptive stellate ganglion block is an effective method in increasing radial artery blood flow and preventing radial artery spasm. Complications related with radial artery spasm may decrease and patients may have a more comfortable postoperative period with this method.

C02 - 9
RESISTANCE TO FLOW OF PEDICLED INTERNAL THORACIC ARTERY AND SAPHENOUS VEIN GRAFTS 6 MONTHS AFTER BYPASS SURGERY
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Objective: Although the internal thoracic artery (ITA) has been proven superior to the saphenous vein (SV) graft in long-term patency, ITA is generally thought to be a more resistive conduit than SV, raising the question of flow capacity during periods of maximal blood flow demand.
Methods: To compare the conductance of ITA and SV, 43 bypass grafts were studied in 23 asymptomatic patients six months after bypass surgery.

Intra-graft pressures were measured during cardiac catheterization using a 0.014-inch pressure wire advanced distally close to the first distal anastomosis of 12 left ITA (mean: 1.3 anastomoses on the left anterior descending territory), 10 right ITA (mean: 1.2 anastomoses on the left circumflex territory) and of 21 SV (mean: 1.3 anastomoses). Pressure gradients between the aorta and the graft were measured in basal conditions and during a transient maximal hyperemia induced by an intra-graft bolus injection of 40 μg of adenosine. Fractional flow reserve (FFR), a validated index of vessel conductance, was calculated as the ratio of distal on proximal pressure during hyperemia.
Results: In basal conditions, a minimal pressure gradient was recorded between the aorta and the left ITA (2.9±2.2 mmHg), the right ITA (1.2±1.2 mmHg) and the SV (0.4±0.7 mmHg). During maximal hyperemia, the pressure gradient increased consistently in all grafts to 9.6±3.2 mmHg in left ITA, to 4.5±2.0 mmHg (P<0.001 vs. left ITA) in the right ITA and to 3.3±2.7 mmHg (P<0.001 vs. left ITA; NS vs. right ITA) in SV. The FFR was 0.90±0.04 in left ITA, 0.95±0.03 in right ITA (P<0.01 vs. left ITA) and 0.96±0.03 in SV (P<0.001 vs. left ITA), every individual value being superior to 0.75, the cutoff for inducible ischemia.
Conclusion: ITA and SV allow myocardial revascularization with only minimal resistance to maximal blood flow and a modest drop in distal perfusion pressure during maximal hyperemia. The resistance appears significantly higher in left ITA than in right ITA and SV.

C02 - 10

DETERMINANTS OF LATE OUTCOME AFTER MINIMALLY INVASIVE DIRECT CORONARY ARTERY BYPASS

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Objective: Minimally invasive direct coronary artery bypass (MIDCAB) is a reliable method to revascularize the left anterior descending coronary artery (LAD). However, a more consistent body of knowledge is needed to assess factors influencing long-term outcome. In this paper, we retrospectively investigated the long-term determinants of survival and freedom from cardiac morbidity and revascularization in patients undergoing MIDCAB.
Methods: From 1995 to 2005, 109 patients underwent MIDCAB. Isolated LAD disease was present in 75 patients (68.8%), whereas 34 (31.2%) had multivessel disease. The first 57 patients (53.2%) underwent early postoperative angiographic reinvestigation. All 109 patients were subsequently followed-up in our outpatient clinic. Follow-up (range 3-112 months; mean 65.7 months) was completed in 100% of cases.
Results: We had no in-hospital mortality, and two patients (1.8%) experienced a perioperative myocardial infarction. At early postoperative angiographic reinvestigation, the anastomotic perfect patency rate was 54/57 (94.7%). Survival was 100% and 95.8% at 1 and 5 years, respectively. Overall freedom from repeated revascularization was 95.3% and 88.3% at 1 and 5 years, whereas freedom from LAD revascularization was 95.3% and 91.6% at 1 and 5 years, respectively. Cardiac event-free survival was 95.3% and 80.8% at 1 and 5 years postoperatively. At multivariable analysis (Cox regression), women presented a higher risk of repeated LAD revascularization, with a hazard ratio of 30.24 (P<0.001), whereas female sex and left ventricular dysfunction were the only predictors affecting long-term cardiac outcome, with a hazard ratio of 5.1 (P<0.001) and 29.35 (P<0.001), respectively.
Conclusion: Key factor for long-term success of MIDCAB seems to be an appropriate patient selection. Special attention should be deserved to women, which appear to experience both a worst cardiac outcome and a higher probability of repeated revascularization on LAD. In the presence of a multivessel disease, MIDCAB may represent a viable option when a complete revascularization is not feasible or an hybrid procedure is envisaged.

14.30-16.00
MAY 12, 2006 2ND CONGRESS DAY

1ST CARDIOVASCULAR SCIENTIFIC SESSION

CV01 - 1
BLOOD CIRCULATION IN THE UPPER LIMBS: REASONS OF CONGENITAL DISORDERS
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Objective: The purpose of the study was to detect reasons of blood circulation disorders in subclavian arteries, related with congenital disorders of development of aortic arch and its branches.
Methods: We analysed the results of surgical treatment of 1261 patients with coarctation syndrome. The reasons of coarctation syndrome in the research group were: 1.Coarctation of the aorta - 1196 patients (94.85%) 2.Aortic arch kinking - 63 patients (5%) 3.Aortic arch atresia - 2 patients (0.15%) In this group we detected 87 patients (6.8%) with blood circulation disorder in one or both subclavian arteries. The pressure gradient between upper limbs variated from 30 to 120 mmHg (average gradient - 52+5 mmHg) in patients with an average age of 17+0.8 (3-56) years. The main reasons of blood circulation disorders in subclavian arteries: left subclavian artery- 72 cases (71.3%), right subclavian artery (A. LUSORIA) - 15 cases (17.2%). Into special group we put 10 patients (11.5%) with blood circulation disorders in both subclavian arteries. Frequency of A. LUSORIA in the research group contained 25 cases (2% of all coarctation syndrome patients).
Results: In all cases with detected anomaly of subclavian arteries we restore direct blood circulation during operation in 100% of cases. Analysis of paraplegia reasons in 3 patients from 1328, operated on with congenital pathology of isthmus of the aorta (kinking, coarctation, aneurysm), detected that all of them had ischemic nature and in all 3 cases abberant disposition of aortic branches took place. In spite of the average aortic clamping time (14+ 6 min) and absence of hemorrhagic complications, even short-time clamping of the left subclavian (vertebral) artery (the main source of direct blood supply of the spinal cord) without preventive neuroprotective methods, led to the mentioned dramatic complications. We came to conclusion that clamping of aorta and its branches is one of the most important mechanism in pathogenesis of ischemia development and reconstructive operations of the aberrant disposition of aortic branches have to be performed with preventive neuroprotective methods, such as regional hypothermia and medicine protection.
Conclusion: This pathology essentially decreases ability of collateral circulation in the lower part of the body and produces changes of circulation in vertebrobasilar territory. That requires using of protective methods of vital organs' functioning during operations and in early postoperative period.

CV01 - 2
SURGICAL TREATMENT OF PATIENTS WITH A COMBINED CORONARY AND CAROTID ARTERIES LESION
Plechev V.V., Izhbuldin I.R., Yagafarov R.I., Zakirov R.I.
Republican Cardiologic Clinic, Ufa, Russian Federation

Objective: Patients with coronary heart diseases including accompanying pathology of brachycephalic arteries form a group of high risk of acute stroke and myocardial infarction. The problem of neurological complications after the coronary bypass has risen since making the first bypass grafting operations. Nowadays strategy of treatment of this category of patients is still unresolved problem. The purpose of this work - is the definition of the strategy of a treatment of patients with the pathology of main arteries of a head and coronary arteries.
Methods: From 2001 to 2005 112 patients with arterial involvement of coronary and carotid arteries was operated. Criteria of definition of dominant defeat were the functional class of stenocardia, the fraction of emission of heart, presence of defeat of a trunk of the left coronary arteria, unilateral or bilateral defeat of carotid arteries, presence of a heterogeneous atherosclerotic plaque in carotid arteries and neurologic deficiency.
The one-stage surgical operations were made to the patients with hard coronary arterial involvement, but they were with stable angina and clinic of cerebrovascular insufficiency. Those patients were 9 (8%) (1-st group). 46 (41,%) patients with the hemodynamic significant stenosis of carotid arteries without neurological deficiency and the evidence stenocardia (2-nd group) reconstructions of the carotid arteries were performed later 2 months after coronary artery bypass grafting. Reconstructions of the carotid arteries were performed by 1 stage to 67 (59.8%) patients with stable angina and clinic of cerebrovascular insufficiency (3-d group).
Results: The early postoperative period in 1 (0.9%) patient from 1-st group and in 2 (1.7%) patients from 3-d groups is complicated by the myocardial infarction. Two (1.7%) patients from 2 groups in the postoperative period had the acute stroke. The main causes of lethality (2.6%) in 1-st and 2-nd groups were acute coronary syndrom and the acute stroke.
Conclusion: One – stage the coronary bypass and reconstructions of the carotid arteries are need a caution approach. It is justified in patients with hard coronary arterial involvement and clinic of cerebrovascular insufficiency. We consider, the surgical recovery of failure blood flow in dominant vascular area in patients with a combined coronary and carotid arteries lesion is an optimal method.

CV01 - 3
COMBINED CORONARY AND LOWER EXTREMITY REVASCULARIZATION IN HIGH RISK PATIENTS
Tarhan A., Yilmaz M., Kehlibar T., Arslan Y., Dumantepe M., Berkoz K., Pancaroglu C., Bilgen F., Ozler A.
Dr Siyami Ersek Thoracic and Cardiovascular Surgery Training and Research Center, Istanbul, Turkey

Objective: The coexistence of CAD with aorto-iliac disease is not rare. Management of these patients is controversial. Staged procedures are usually recommended. In rare instances simultaneous coronary and peripheral arterial revascularization may be required.
Methods: Between April 1994 and November 2005, fourteen patients underwent combined procedure. All patients were male and mean age was 59,07±6.75. In thirteen patients median sternotomy and in two patients minithoracotomy were administered. CABG was established on CPB in six patients and OPCAB is used in the rest. Femoral arteries were bypassed with PTFE grafts descended from the ascending aorta and passed through the preperitoneal abdominal wall tunnel in twelve patients. We used descending aorta as inflow vessel in two patients.
Results: Both patients recovered well and experienced no angina or claducation at the early postoperative period. Mean hospital stay was 10.5 days. Patients were followed up using different methods. Long term angiographic controls were obtained with multislice-CT angiography in half of patients. All grafts were patent. The remainig patients were evaulated by physical examination, doppler sonography and echocardiography.
Conclusion: This technique is simple, safe and good alternative in patients with previous abdominal surgery or massive adhesions, obesity, extensive calcifications of the abdominal aorta and respiratory insufficiency. Long term radiologic and clinical results are acceptable.

CV01 - 4
CORONARY ARTERY SURGERY IN PATIENTS WITH CAROTID DISEASE
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Lower Silesian Heart Center "MEDINET", Wroclaw, Poland

Objective: The purpose of this study was to assess the influence of carotid disease on early postoperative outcomes in patients undergoing coronary artery bypass grafting(CABG).
Methods: In 100 (15.7%) out of 637 consecutive patients undergoing CABG who underwent a duplex ultrasound scanning of the carotid arteries, an internal or common carotid artery diameter reduction greater than 50% was detected. The remaining 537 patients composed the control group. Patients undergoing synchronous carotid endarterctomy and CABG were excluded from this study. The patients with carotid disease were significantly older (mean age 66±8.2 vs. 62±8.7 years, $P<0.001$), presented higher perioperative risk estimated by EUROSCORE (6.1±2.7 vs. 3.6±2.5) and more frequently underwent prior cerebrovascular accidents (n = 22; 22% vs. n = 43; 8%; $P<0.001$) than patients in the control group. The prevalence of hypertension, diabetes mellitus, prior myocardial infarction, unstable angina, impaired LVEF (<50%), renal failure, chronic obstructive pulmonary disease and aorta calcification showed in the preoperative chest X-ray picture was equal in both groups (p>0.05). Operative data: OPCAB rate, mean aorta cross - clamp and extracorporal circulation time and decrease of mean arterial pressure below 60mmHg did not revealed any differences in both groups (p>0.05).
Results: The rate of postoperative cardiac arrhythmias was comparable in both groups (p>0.05). The neuropsychologic deficits occurred more

frequently in the patients with carotid disease (n = 40; 40% vs. n = 74; 13.8%; P<0.001). The patient group with carotid stenosis needed more frequently inotropic support (n = 18; 18% vs. n = 48; 8.9%; P = 0.01) or IABP application (n = 7; 7% vs. n = 10; 1.9%; P = 0.009) than the control group. The combined rate of adverse postoperative events (myocardial infarction, cerebrovascular accidents, death) seemed to be greater in the patients with carotid disease (n = 8; 8% vs. n = 27; 5%) but the difference was not statistically significant (p>0.05).
Conclusion: The patients with carotid disease may be deemed at high risk. The carotid arteries stenosis expresses generalized atherosclerosis which is partly responsible for less good results of coronary surgery.

CV01 - 5
THE OPTIMAL SURGICAL MANAGEMENT CHOICE FOR PATIENTS HAVING CONCOMITANT CAROTID AND CORONARY ARTERY DISEASE
Chernyavsky M.A., Kovlyakov V., Mironenko P.S., Vinogradova E.T., Fomichev A.
Novosibirsky research institute circulation pathology by him the academician Meshalkin E.N., Novosibirsk, Russian Federation

Objective: Controversy remains regarding the optimal surgical management of patients with coexisting significant carotid and coronary artery disease. There is a risk of development ischemical of damage not revascularization vascular of pool at performance staged of operations. Simultaneous of operations on both vascular pools carries in itself difficultly price risk of development as stroke and myocardial infarct (MI). The purpose of research to estimate the early results of surgical treatment concomitant carotid and coronary artery disease simultaneous or staged an operations.
Methods: During an 7-year period beginning October 1998, 164 (5.1%) of 3215 consecutive patients who were referred for isolated coronary surgery were found to have significant carotid disease and underwent CEA and CABG. The mean age was 51.4±6.2 years and 158 (98.3%) were males. All patients divided into two groups depending on a way of surgical treatment. In the first group (50) were carried out concomitant of operation CABG and CEA, in the second group (114) staged of operations. Stenosis three and more coronary artery took place all the patients, with hemodynamic important (>60%) stenosis one or both carotid artery. The patients in first and in the second group are comparable approximately on weight of a defeat coronary and carotid artery. The sequences of performance of operation depend on a degree of a defeat vascular of pool at staged surgical treatment. The second operation was made in the same hospitalization or on the average during 6 months after the first operation.
Results: The perioperative mortality has made four patients (8.0%) in the first group, stroke at four patients (8.0%), MI at 3 patients (6.0%). The perioperative mortality has made one patient (0.7%) in the second group, stroke at five cases (3.5%), MI at two patients (1.4%). The cases mortality was are caused development perioperative MI and myocardial weakness in early period after operation.
Conclusion: The results of one investigations allows making a conclusion about decrease of risk global perioperative mortality at performance staging of carotid and coronary operations at the patients with concomitant atherosclerotic carotid and coronary artery disease.

CV01 - 6
CEREBRAL AND CARDIAC COMPLICATIONS ANALYSIS AT DIFFERENTIAL APPROACH TACTICS OF SURGICAL TREATMENT OF PATIENTS WITH COMBINED LESIONS OF CORONARY AND CAROTID POOL
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Tomsk Centre of Cardiology, Tomsk, Russian Federation

Objective: To estimate results of single- and stage-by-stage treatment of patients with CHD and carotid artery(CA) atherosclerosis.
Methods: Evaluation of myocardium perfusion condition and its reserves was performed by scintigraphy using Tl201 in stress testing conditions with adenosine. Reserve of cerebral blood circulation was examined using electro-impedance tomography with dosed isocapnical hypoxia in the background. Relying on analysis of compensatory blood flow possibilities in coronary and carotid pools, indications for stage-by-stage or combined heart and cerebral revasculization were determined. We performed surgical treatments of 57 patients. An average age of patients was 52.6±6.7. In 51 (89.4%) patients exertional angina of III-IV FC(CSS) was noticed. In 6(10.6%) cases progres-sive stenocardia was registered. 47(82.4%) patients had myocardial infarction(MI) in the past. Multivascular involvement of a coronary channel was revealed in 53(93%) cases, stenosis of left coronary arterial trunk was detected in 4(7%) cases. An average quantity of bypassed arteries was 3.5±0.9. Anamnesis of 27(47.5%) patients was burdened with transient ischemic at-tacks(TIA) of brain, 10(17.5%) patients sustained ischemic stroke(IS). The other 20(35%) pa-tients had clinically asymptotic hemodynamically significant stenosis of CA. In 39(68.5%) cases stenotic(>75%) involvement of CA was unilateral, in 18(31.5%) cases-bilateral. Carotid en-darterectomy(CEA) with autovenous graft of the orifice of ICA was performed under pharmaco-hypothermic brain protection conditions.
Results: 22(38.5%) patients, with significantly reduced indices of cerebral blood flow reserve at satisfactory myocardial perfusion reserve, were subjected to stage-by-stage surgical treatment. At the first stage CEA was performed, at the second-CS in 14-20 days. In this group during early postoperative period 1(4.5%) acute MI(after CEA) was performed, and 4(18.1%) TIA cases were registered. 35(61.5%) patients with low both coronary and cerebral circulations reserve were subjected to single-stage surgical myocardial revasculization and CEA. Among 5(14.3%) patients TIAs were detected. In the pool of the operated artery IS was detected in 1(2.5%) case as well as perioperative IM.
Conclusion: Functional evaluation of cardiac and cerebral perfusion reserve allows to differentiate high-risk patients with combined atherosclerotic coronary and carotid pool lesions with the purpose of choice of optimal surgical treatment tactics. Single-stage operations are expedient for patients with low reserve of coronary and cerebral circulation. At that, risk of cerebral and cardiac postoperative complications is not higher than at the stage-by-stage operations.

CV01 - 7
IS SCREENING FOR CAROTID ARTERY STENOSIS IN PATIENTS AWAITING CARDIAC SURGERY GOING TO INCREASE THE WORKLOAD?
Fassiadis N., El Sakka K., Chong P., Zayed H., Rashid H.
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Objective: The aim of this prospective study was to identify the prevalence of carotid artery disease in patients undergoing major cardiac surgery in the light of the Asymptomatic Carotid Study Trial [ACST].
Methods: A carotid duplex scan was performed in 523 consecutive patients (median age 71 years, age range 34-89, m:f 4:1) as part of the preoperative assessment for coronary artery bypass grafting [CABG]±aortic valve replacement [AVR] or AVR alone. Asymptomatic patients with severe bilateral Internal Carotid Artery [ICA] stenosis (>or=170% stenosis bilaterally) and symptomatic patients with ipsilateral ICA stenosis of >or=70% were offered carotid endarterectomy [CEA] prior to cardiac surgery (staged procedure).
Results: 24 asymptomatic patients with severe bilateral ICA stenosis (4.5%) and 8 (1.5%) symptomatic patients with severe ipsi-lateral ICA stenosis underwent CEA prior to cardiac surgery. None of the CEA patients suffered postoperatively a stroke or death. 4 asymptomatic patients with severe bilateral ICA stenosis were not referred for CEA. Furthermore, 31 patients with asymptomatic unilateral 60-99% stenosis were identified. Out of which 16/523 (3%) patients (<75 years) should have an elective CEA as recommended by the ACST. Similarly, an additional 10/523 (2%) asymptomatic patients with severe bilateral ICA stenosis who already underwent CEA prior to their cardiac operations would also benefit from a contra-lateral CEA.
Conclusion: Routine screening for ICA stenosis using carotid duplex scan generates 5.9% staged CEAs and an additional 5% which might benefit from reversed staged CEAs based on the ACST.

CV01 - 8
COMBINED TREATMENT OF ACUTE TYPE A AORTIC DISSECTIONS BY ASCENDING AORTA REPLACEMENT AND INTRA-OPERATIVE STENTING
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Chirurgie Cardiovasculaire B, Centre Hospitalier Universitaire de Rangueil, Toulouse, France; Divisione di Cardiochirurgia, Università degli Studi, Parma, Italy

Objective: After surgical treatment of type A aortic dissections a long segment of these aortas often remain dissected. The aim of our retrospective study was to analyse feasibility and first clinical and pathophysiological results of a new combined surgical procedure.
Methods: From November 9,2000 to September 1, 2004, 16 patients from two centres were treated. They underwent conventional ascending aorta

replacement and stenting of the arch or descending aorta with uncovered stents (Djumbodis dissection system) during circulatory arrest.
Results: All the stents have been implanted with short time of circulatory arrest. Median follow-up was 329 days [15-1118]. We had 2 peroperative deaths (12.5%). Thirty-days mortality was 25% (4/16). Cumulate survival rate was 77.9%. Postoperative complications were respiratory, renal and neurological. We have observed significant reductions in number of perfused false lumen ($P = 0.0384$) and diameter ($P = 0.0070$) of stented aortic arches compared to unstented descending aortas.
Conclusion: Our study demonstrates feasibility of this combined procedure and its positive effect on pathophysiologic evolution of aortic dissection. It thus appears logical to us to extend this treatment to the whole dissected aorta.

14.30-16.00
MAY 12, 2006 2ND CONGRESS DAY

1ST VASCULAR SCIENTIFIC SESSION
ABDOMINAL AORTA ANEURYSMS

V01 - 1
ABDOMINAL AORTIC ANEURYSM SURGERY IN A DISTRICT GENERAL HOSPITAL—A 15 YEARS EXPERIENCE
Qureshi A.N., Rehman - A., Shiralkar - S., Patel - R., Jayatunga - A.
Russells Hall Hospital, Dudley, England

Objective: The incidence of patients presenting with both ruptured abdominal aortic aneurysm (RAAA) and elective abdominal aortic aneurysm (EAAA) increases with ageing population. The aim of our study was to find out the peri-operative mortality from RAAA and EAAA in a busy district general hospital over 15 years. It was anticipated that the results would support the case for screening for AAA.
Methods: All patients operated for abdominal aortic aneurysm (AAA) from 1989–2003, elective and ruptured, were included. Patients who died in the community from RAAA and diagnosed only on postmortem were also included. The data was collected from hospital information system, theatre logbooks, I.T.U records, post mortem register and patients' medical notes.
Results: There were 816 cases of AAA recorded during the study period. This included 468 cases of RAAA (57%) and 348 EAAA (43%). Out of 468 RAAAs, 267 presented as an emergency. Of these, 243 patients (52%) underwent emergency repair of RAAA including 213 males (87.6%) (Median age: 72 years, age range: 54-92 years), with male: female ratio of 7:1. 20 patients died during the operation. 24 patients (5%) did not undergo any surgical repair because of multiple co-morbidities. 201 patients were found to have RAAA on post mortem (43% of all RAAAs) (Figure 1). Most of the patients were over the age of 65 years, with peak incidence being between 70-74 years (2). The average incidence per year for males was 17.3/100,000 and 5/100,000 for females (Figure 3). 30-day postoperative mortality for RAAA repair was 43% (Figure 4). Overall mortality for all cases of ruptured AAA, both operated and non-operated, was 70% (Figure 5). Elective AAA repair was performed in 348 patients over the same period of time (Figure 6), including 282 males (81%) (Median age: 74 years, age range: 45-94 years) with male: female ratio of 4.3:1. Most of these patients were over 60 years of age, with peak incidence being between 70-74 years. 30-day postoperative mortality in the elective group was 7.75% (27/348) (Figure 7).
Conclusion: Although RAAA repair is associated with survival in a number of patients, its mortality is much higher than elective repair. Incidence of RAAA has remained the same over the past 15 years. A high proportion of patients with undiagnosed AAA die even before reaching hospital, which makes a case for aortic screening. This suggests that a large number of lives may be saved if the AAA is detected before rupture.

V01 - 2
SEXUAL DYSFUNCTION FOLLOWING SURGICAL AAA REPAIR
Ricevuto G., Branca M., Bajardi G.
Vascular Surgery Unit University of Palermo, Palermo, Italy, Vascular Surgery Unit University of Palermo, Palermo, Italy, Vascular Surgery Unit University of Palermo, Palermo, Italy

Objective: To analyze sexual dysfunctions following AAA surgical repair. These complications were first described in 1969 by a multifactorial pathogenesis. After standard open repair an incidence between 30-80% is reported. Two dysfunctions have been identified: retrograde ejaculation and erectile dysfunction. Erectile dysfunction follows injuries to hypogastric nervous plexus, spinal cord ischemia or hypogastric arteries exclusion. Retrograde ejaculation follows direct surgical injuries to periaortic plexus during aortic bifurcation dissection.
Methods: One hundred male patients who survived at least one year after open AAA standard repair have been considered. 64 had a straight graft qhile 36 a bifurcated graft (18 to common iliac arteries, 10 to femoral arteries, 8 a different limb peripheral anastomosis). One IMA and one hypogatsric arteries were reimplanted.
Results: Post-operative evaluation was carried by direct interview or in some cases by specialistic (urologic) evaluation. About 50% of the patients showed a post-operative modification of their sexual function. 60% of these cases showed retrograde ejaculation, while 40% an erectile disorder. While retrograde ejaculation remained immodified during the follow-up period, erectile disorders showed different degrees of improvement (20% resolved completely), in some cases with pharmacological support.
Conclusion: Sexual dysfunction remains an ubiquitarious complication of AAA surgery. Although EVAR eliminated necessity of periaortic dissection and so the potential injuries to periaortic plexus, on the other hand has increased the recourse to bifurcated grafts and the incidence of hypogastric arteries exclusion. This is mostly true when AAA morphology requires a distal graft landing below iliac srterie bifurcation. Multifactorial pathogenesis of post-operative sexual disorders, makes a difficult task to assess the real role of surgery in the determination of the complication. A complete and accurate pre and post-operative evaluation is felt necessary to identify patients where surgery is the only cause of this disturb.

V01 - 3
EFFECTS OF THORACIC AND HIATAL CLAMPING IN REPAIR OF RUPTURED ABDOMINAL AORTIC ANEURYSMS
Islamoglu F., Apaydin Ziya A., Engin C., Posacioglu H., Calkavur T., Yagdi T., Atay Y., Durmaz I.
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Objective: Aim of our study was to evaluate comparatively the effects of hiatal and thoracic clamping on postoperative outcome and morbidity, and to determine the factors affecting mortality and morbidity in patients for whom infrarenal clamping of aorta could not be possible.
Methods: The records of 102 patients with mean age of 69.4±8.7 years who had undergone ruptured abdominal aortic aneurysm repair between 1993-2005 were evaluated retrospectively. Hiatal clamping and toracic clamping were performed in 72 patients and 30 patients, respectively. By univariate and multivariate statistical analyses of respiratory, renal, gastrointestinal, cardiac complications, relaparotomy, infection, mortality, cell saver usage, blood and blood product requirements, and hospitalization time were evaluated comparatively between two groups. Survival, mortality and morbidity were evaluated by Kaplan-Meier analysis.
Results: Overall mortality, 1-year mortality (including hospital mortality), and hospital mortality rates were 63 (61.8%), 39 (38.2%) and 24 (23.5%) patients, respectively, and there was no difference between two groups. Univariate analyses revealed that postoperative respiratory complications, gastrointestinal complications, relaparotomy, and blood requirement were significantly higher in the toracic clamping group. Chronic obstructive lung disease (COPD), preoperative shock, and renal ischemia time (>30 min) were found to be statistically significant predictors of 1-year mortality. All these factors but COPD were also found statistically significant predictors of in-hospital mortality. Postoperative renal failure was only independent postoperative predictor of mortality. In follow-up period, cardiac event was an independent predictor of late mortality occured beyond postoperative 1month. Predictor of postoperative renal failure was prolonged renal ischemia time. Preoperative COPD, thoracic clamping of aorta, and cell saver usage were also independent predictors of overall morbidity. If early and in-hospital mortalities were excluded 5-year and 10-year cumulative survivals were 58.64±5.88% and 38.70±7.05%, respectively. Cross-clamp level had not a significant effect on long-term survival. Cardiac events in follow-up was only independent predictor of late deaths and long term survival. Although patients had a 81.51±6.50% of peripheral vascular event-free survival at 10 years, cardiac event-free survival at 10 years was 40.14±8.24%.
Conclusion: Although both thoracic and hiatal clamping have not an effect on mortality provided clamping time is under 30 min, postoperative respiratory complications and intestinal ischemia, probably due to higher level of clamping, are more pronounced in patients operated with thoracic clamping. Hiatal clamping is more preferable for a safe postoperative period in all patients with ruptured abdominal aortic aneurysm and for whom infrarenal clamping is not possible.

V01 - 4
PREOPERATIVE PREDICTORS OF IN-HOSPITAL MORTALITY IN PATIENTS WITH RUPTURED AORTIC ANEURYSM
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Objective: The purpose of this study was to identify preoperative factors associated with in-hospital mortality in patients with ruptured AAA.

Methods: Two hundred forty six patients admitted to a vascular surgery center with ruptured in the years 1987-2005 were retrospectively analyzed. There were 219 (89%) men and 27 (11%) women and the average age of patients was 69.6 (±8.6) years. Thirty one (12.6%) patients were not operated on. The end-points were in-hospital mortality of all patients and in-hospital mortality of operated patients. The influence of age, gender, distance from the vascular surgery center, diameter of the aneurysm, systolic and diastolic blood pressure at admission, preoperative hemoglobin, hematocrit, erythrocytes, leukocytes, platelets, serum urea and serum creatinine on the study endpoints was investigated. The results were statistically analyzed.
Results: The mean in-hospital mortality of all patients was 60.6% and mean in-hospital mortality of operated patients was 54.1%. Shorter distance from the vascular surgery center (P = 0.029), lower systolic and diastolic blood pressure at admission (P = 0.0006 and P = 0.0067, respectively), lower preoperative level of hemoglobin (P = 0.017), hematocrit (0.009), erythrocyte (P = 0.029) and platelets (P = 0.034) and higher serum urea (P = 0.0025) and creatinine (P = 0.0024) levels were significantly associated with in-hospital mortality of all patients. Similarly lower systolic and diastolic blood pressure at admission (P = 0.001 and P = 0.009, respectively), lower preoperative level of hemoglobin (P = 0.01), hematocrit (P = 0.006), erythrocyte (P = 0.028) and platelets (P = 0.043) and higher serum urea (P = 0.036) and creatinine (P = 0.018) levels were significantly associated with in-hospital mortality of operated patients. The distance from the vascular surgery center did not influence the in-hospital mortality of operated patients. There was not any statistically significant association between age, diameter of the aneurysm and preoperative leukocytes level and in-hospital mortality of both all and operated patients.
Conclusion: Severity of preoperative haemorrhagic shock significantly influences the in-hospital mortality of patients with ruptured AAA. It seems that proper management of these patients at prehospital stage could improve the results of treatment.

V01 - 5
DOES SPECIALIZATION IMPROVE OUTCOME IN ABDOMINAL AORTIC ANEURYSM SURGERY?
Gürke L., Rosenthal R., Eugster T., Wolff T., Stierli P.
Vascular Surgery/University Hospital, Basel, Switzerland

Objective: Specialization and high volume are reported to be related to a better outcome after abdominal aortic aneurysm repair. The aim of this study was to compare, in patients undergoing abdominal aortic aneurysm repair, the outcomes of those whose surgery was done by general surgeons with the outcomes of those whose surgery was done by specialist vascular surgeons.
Methods: All patients undergoing abdominal aortic aneurysm repair at the Basel University Hospital (referral center) from January 1990 to December 2000 were included. Patients with endovascular treatment were excluded. Operations in group A (n = 189), between January 1990 and May 1995, were done by general surgeons. Operations in group B (n = 291), between June 1995 and December 2000, were done by vascular surgeons.
Results: In-hospital mortality and local and systemic complications were assessed. In-hospital mortality rates were significantly lower for group B (with specialist surgeons) than for group A, both overall (group B, 11.7%; group A, 21.7%; P = 0.003) and for emergency interventions (group B, 28.1%; group A, 41.9%; P = 0.042). The reduction in mortality for elective surgery in group B was not statistically significant (group B, 1.1%; group A, 4.9%; P = 0.054). There were significantly fewer pulmonary complications in group B compared with group A (P =0.000).
Conclusion: We conclude that in patients undergoing abdominal aortic aneurysm repair, those whose surgery is done by a specialized team have a significantly better outcome than those whose surgery is done by general surgeons.

V01 - 6
LOWER LIMB PARARALYSIS FROM ISCHAEMIC NEUROPATHY OF THE LUMBOSACRAL PLEXUS FOLLOWING AORTO-ILIAC PROCEDURES
Abdellaoui A., West J.N., Tomlinson M., Browning N., Thomas M.
Lancaster and Lake District Vascular Unit, Lancaster Royal Infirmary, Lancaster, England; Vascular Unit, St Peter's Hospital, Chertsy, England; St Georges Hospital, London, England

Objective: Neurological injuries following aorto-iliac procedures are rare, unpredictable and cause significant morbidity. We report 4 cases of lower limb paralysis following aorto-iliac procedures, 2 of whom suffered internal iliac occlusion.
Methods: Four male Patients age ranging between 56 and 77 years underwent aorto-iliac procedures. Three patients had repair of infra-renal abdominal aortic aneurysm (2 open and 1 endovascular repair) and one patient had percutaneous angioplasty of the internal iliac artery.
Results: All patients developed paralysis of a lower limb early, following surgery. Neurophysiological studies were performed in 3 patients and confirmed the injury to the lumbosacral plexus in 2 cases. MRI scan was performed in 2 patients and did not show any abnormality. In two of our cases, occlusion of one internal iliac artery is implicated as the cause of lumbo-sacral plexopathy: one with the coverage of the internal artery origin with the stent, the other due to thrombotic occlusion of common and internal iliac in arteries after an open repair of elective abdominal aortic aneurysm with a bifurcated graft. Follow up ranged between 2 and 4 months. Only one patient recovered completely the other three were left with permanent disability.
Conclusion: Ischaemic neuropathy following aortoiliac interventions, whether open or endovascular, remains a rare, unpredictable and devastating complication. When it occurs it is likely to result in permanent neurological disability. It is important to note that it may be related to internal iliac artery thrombosis.

V01 - 7
EXPERIENCE OF TREATMENT OF PATIENTS WITH ABDOMINAL AORTA RUPTURE OVER 16-YEAR PERIOD FROM 1989 TO 2004
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Scientific Research Institute of First Aid named by N.V. Sklifosovsky, Moscow, Russian Federation; Scientific Research Institute of First Aid named by N.V. Sklifosovsky, Moscow, Russian Federation

Objective: Treatment of patients with rupture aneurism of abdominal aorta is the most complex and interesting problem of current angiosurgery. This is due to the continuous increase of patients having this pathology, and unsatisfactory treatment results.
Methods: -
Results: During the last 40 years, 1014 patients with abdominal aorta aneurism both complicated by rupture, and not complicated, were under our supervision. In this work, the results of treatment in the group of patients with abdominal aorta aneurism rupture, admitted to our hospital from 1989 to 2004, are subject to detailed analysis. We have analysed only the observations with"true" ruptures, the cases where the rupture of all three aneurism walls with bleeding outside its bounds was observed. Over the specified period of time, 454 patients with abdominal aorta aneurism rupture were admitted. Among them, there were 390 males (86%), 64females (14%), and 417(92%) of admitted patients belonged to the groups of senior and old age (by WHO classification). The majority of patients with rupture had <<large>> and <<giant>> aorta aneurisms, and only 36 patients (7.9% of the total number) <<small>> aneurisms under 5cm in diameter. In the majority of patients, the rupture flowed into retroperitoneal space and abdominal cavity, a rare forms of ruptures (anastomosis formation) were observed in 12 patients (2.4%). Surgical activity was 45.8% (208 patients). 246 patients (54.2%) were not operated for the following reasons: agonic condition of patient, flat refusal of a patient from surgery, and a patient's death on operating table during anaesthetic induction. During 16 years, we have operated the overall number of 208 patients. Noticeable is the tendency of increase in the number of operated patients with abdominal aorta aneurism rupture; particularly, during the last 6 years (from 1997–2002), 141 patients (68%) were operated. Mortality in the group of operated patients is 52.2% (110 patients). The main reason of death in operated patients with abdominal aorta aneurism rupture was acute post-hemorrhagic anaemia due to massive preoperative and intraoperative blood loss. In case of operative therapy, laparotomic access with intrasac linear or aortoiliac prosthesis of aorta was preferred (43%). Ligature of abdominal aorta based on extraperitoneal mini-access with subclavian/femoral bifurcational prosthesis was made in 21 patients(10%). GORE-TEX synthetic grafts (linear, bifurcational, a xilo-bifemoral) were preferred. Such reconstructions were carried out in patients being in the extremely bad condition, generally over 80 years old, since the increase of surgery volume would inevitably lead to a patient's death on operating table. Based on the analysis of the treatment results in a group of operated patients, substantial improvement of the results from 1997 was noted. Thus, from 1989 to 1996, mortality was 71.6% (67 patients were operated, 48 patients died), and from 1997 to 2004, it was 50.4% (141 patients were operated, 71 died).
Conclusion: We attribute the improvement of results of operative therapy to the accumulation of surgical experience in our hospital, individual approach

to the determination of surgical tactics depending on the flow type of abdominal aorta aneurism rupture, the use of hardware-based reinfusion of autoblood during all the operations concerning aneurism ruptures, as well as to the reduction of volume of operative measures in patients of senior and old age (subclavian/femoral bypassing).

V01 - 8

CLINICAL DIAGNOSES OF ABDOMINAL AORTIC ANEURYSM AND AUTOPSY FINDINGS: A RETROSPECTIVE ANALYSIS OF 518 CASES IN SAINT-PETERSBURG

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Saint-Petersburg State Medical University named after acad. I.P. Pavlov, Saint-Petersburg, Russian Federation

Objective: To compare the clinical diagnoses with postmortem findings of abdominal aortic aneurysm and evaluate the frequency of diagnostic errors assessed by autopsies.

Methods: Retrospective analysis of the protocols of 50715 consecutive cases of adult patients autopsied performed in the 5 year period from 1995 to 1999 in Saint-Petersburg (Russia). The outcome measures included concordance between diagnosis before death and at autopsy, sex, age, and the cause of death of the patients with abdominal aortic aneurysm.

Results: Abdominal aortic aneurysms were found in 518 (1.02%) cases. The ratio of male to female was 1.4 to 1, and 95% of these patients were older than 60 years. The average mortality rate due to complications of the abdominal aortic aneurysm in this age group was found to be 0.22 per 1000 per year. In the cases when the patients died of the complications cuased by the aneurysm the autopsy findings confirmed the clinical diagnosis and the cause of death suggested by the clinicians only in 41.7% (145 of 348 patients). In another 170 cases when the cause of the patient's death was not related with aneurysm, unsuspected before death abdominal aortic aneurysms were diagnosed during autopsy in 134 (78.8%) patients.

Conclusion: It is concluded from this study that autopsies may reveal unexpected findings that are of critical importance. Continued emphasis on more careful clinical evaluation and ultrasound examination of patients with risk factors of aneurysm is necessary to improve the quality of patient care.

14.30-16.00
MAY 12, 2006 2ND CONGRESS DAY

2ND VASCULAR SCIENTIFIC SESSION
CEREBROVASCULAR INSUFFICIENCY I

V02 - 1
SIMULTANEOUS BILATERAL CAROTID ARTERY ENDARTERECTOMY. OUR EXPERIENCE
Coen M., Teutonico P., Tsolaki E., Sileno S., Agnati M., Mascoli G. F.
Operative Unit Of Vascular And Endovascular Surgery S.Anna University Hospital, Ferrara, Italy

Objective: Simultaneous bilateral carotid artery endarterectomy is very rarely performed because of the potential increased danger arising from double anesthetic and surgical procedures, with a more pronounced incidence of injury to the cerebral nerves and strokes. This study compares the results of simulataneous bilateral carotid endarterectomy with staged endarterectomy.
Methods: Over an 8-year period (December 1996-December 2004), 1170 patients underwent 1330 carotid endarterectomy procedures (CEA) to treat symptomatic and asymptomatic high-grade carotid artery stenosis. Ten of these patients underwent 20 simultaneous bilateral carotid endarterectomy (SBCE). They were compared with 30 patients who underwent 60 bilateral staged endarterectomy. The patients in the two groups were comparable in age, smoking status and gender. The indications for surgery and the surgical management were similar. Routine carotid artery shunting was used in all interventions. All patients underwent duplex scan follow-up and clinical evaluation every three months during the first year after CEA.
Results: The results are comparable in both groups. No mortality, myocardial infarct, respiratory problems or major neurological complications were observed in either groups.
Conclusion: Despite the small number of our patients undergone simulateneous bilateral procedures, our results suggest, together with that of the international literature, that SBCE can be safely performed in selected patients by high volume experienced vascular surgeons.

V02 - 2
CAROTID ENDARTERECTOMY: COMPARISON OF RESULTS IN LOCAL VERSUS GENERAL ANAESTHESIA
Menyhei G., Gyevnar Z., Kollar L.
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Objective: Locoregional anaesthesia proved to be one of the safest methods for cerebral monitoring during CEA. This study compares the results of CEA performed under local vs. general anaesthesia in terms of outcome and postoperative complications at a single vascular unit.
Methods: A prospective study was carried out on 164 patients. 87 of them underwent CEA under local and 77 patients under general anaesthesia. The two groups were similar for age, gender, preoperative risk factors and in terms of symptomatic or asymptomatic distribution.
Results: There was no perioperative death. There was no significant difference between the two groups in the overall stroke rate (3.4 vs. 3.9%) and shunt rate (9.1 vs. 10.3%). Locoregional anaesthesia was associated with significantly lower incidence of cardiovascular complications (4.6 vs. 10.4%, $P<0.001$) and shorter hospital stay (5.2 vs. 6.7 days, $P<0.005$). Significantly higher rate of postoperative bleeding complications (7.3 vs. 3.2%, $P<0.001$) was observed in the locoregional anaesthesia group.
Conclusion: CEA can be performed safely under locoregional anaesthesia with lower incidence of cardiovascular complications and shorter hospital stay. Patient satisfaction with locoregional anaesthesia can be considered highly acceptable.

V02 - 3
CAROTID ARTERY REVASCULARISATION IN PATIENTS WITH PREVIOUS NECK IRRADIATION
Paraskevas N., Alsac J., Castier Y., Francis F., Cerceau P., Coppin T., Leseche G.
Hôpital Beaujon, Clichy, Paris, France

Objective: Surgical management of carotid artery stenosis in patients with previous neck irradiation remains controversial. The safety and durability of the procedure have been questioned. The aim of the study was to show immediate and long term results in a series of 35 carotid revascularisations through a radiated field.
Methods: From May 1990 to May 2004, 32 patients underwent 35 carotid revascularisation procedures. All of them had received previous radiation therapy with a mean radiation dose of 63 Gy. Twenty two patients presented moderate to severe scarring of the skin or fibrosis. Fourteen patients had undergone radical neck dissection and 2 patients had a permanent tracheostomy. Indications for surgery included symptomatic high grade stenosis (>70%) in 20 patients and asymptomatic high grade stenosis in 15 patients. General anesthesia with systematic shunting was used in 66% of cases and regional anesthesia with selective shunting in the remaining 34%. Operative technique included standard carotid endarterectomy in 24 patients, with patch angioplasty in 16 or direct closure in 8; carotid interposition bypass grafting in 8 patients and subclavian to carotid bypass grafting in 3 patients. Direct closure of the wound was possible in all cases. Mean follow-up was of 41 months (3125).
Results: There was one perioperative death due to massive intracerebral haemorrhage. One patient had a transient ischaemic attack. Postoperative hospital course was complicated by two cervical hematomas, one of which was evacuated surgically. There was no cranial nerve injury, delayed wound healing or infection. During the follow-up 17 patients died of unrelated causes. All patients remained free of new symptoms or new stroke. Duplex scan examination revealed asymptomatic recurrent stenosis (>60%) in three patients. Two of them had a stenosis > 80% and underwent redux carotid surgery. Follow-up at 36 months revealed a cumulative survival rate of 58%, a cumulative primary patency rate of 92%, and a cumulative patency rate without recurrent stenosis of 88.5%.
Conclusion: Carotid revascularisation through a radiated field seems to be a safe and durable procedure in patients at high surgical risk, despite a marked incidence of recurrent stenosis.

V02 - 4
ENDOVASCULAR MANAGEMENT OF INTERNAL CAROTID ARTERY STENOSIS - EVALUATION OF EARLY RESULTS BASED ON OWN EXPERIENCE
Kuczmik B.W., Ziaja D., kostyra J., Kucharzewski M., Leszczyna A., Ludyga T., Krupowies A., Kowalewska-Twardela T., Wziatek-Kuczmik D., Ziaja K.
Department of General and Vascular Surgery, Katowice, Poland; Department of General and Vascular Surgery, Katowice, Poland

Objective: This paper presents the perioperative results of endovascular management for a critical carotid artery stenosis. The authors demonstrate the beneficial effect of the method, particularly in high-risk surgical candidates. Aim of study was an evaluation of the early outcome of angioplasty and stent placement in a critical internal carotid artery stenosis.
Methods: From January 2001 through December 2005; 225 endovascular procedures involving internal carotid artery angioplasty and stent placement were performed. Only one carotid artery dilatation was attempted; in a case of bilateral lesions, angioplasty was performed on the side of the symptomatic, or more severe, stenosis. In 95 procedures (42%) neuroprotection was used. The study group involved 152 male and 73 female patients, aged 59 to 84 years (the mean age was 72 years). All patients who elected to undergo endovascular management were considered to be at high surgical risk and had > 70% carotid artery stenosis as determined by an ultrasound examination. The duration of the procedure was 14 to 45 min (mean 22 min). Hospital stays ranged from 2 to 24 days (mean 2.8 days).
Results: Postoperative ischaemic stroke was observed in 8 patients (3.5%); including 3 procedures with neuroprotection, and 5 without neuroprotection. Perioperative mortality was 0.9%; a one patient died of extensive ischaemic stroke, next patient died of intracerebral hemorrhage. During the procedure, transient ischaemic attack (TIA) occurred in 14 patients (6.2%), bradycardia w 26 (11.5%) and hypotonia in 28 (12.4%). Bradycardia was sporadic following routine atropin administration prior to stenosis predilation. One patient developed hyperperfusion syndrome with convulsive attacks, headache, and consciousness level deterioration; no cerebral ischaemia was found on the CT. Conversion to open repair proved necessary in one patient.
Conclusion: Angioplasty with stent placement is an effective and safe treatment for a critical carotid artery stenosis.

V02 - 5
CEA OR CAS WITH CEREBRAL PROTECTION IN ELDERLY PATIENTS?
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Dept. of Vascular Surgery, University of Rome “La Sapienza”, Sant’Andrea Hospital, Rome, Italy

Objective: Carotid angioplasty and stenting (CAS) is considered as an alternative to carotid endarterectomy (CEA) in patients at high surgical risk.

Considering elderly patients at high surgical risk CAS can be performed, even though new studies demonstrated that, despite the use of cerebral devices, neurological complication rate in these patients is significantly higher than in CEA.
Methods: From January 2003 to November 2005 fifty-nine patients, 78 years or older, underwent 31 CAS with cerebral protection (transfemoral approach in 77% and cervical access in 33%) and 28 CEA (sCEA in 64%, Chevalier eversion technique in 32% and carotid bypass in 4%). In CAS group 24 patients (77%) were asymptomatic, while 18 patients (64%) were asymptomatic in CEA group. Most of patients in CAS group were classified as ASA III - IV (74%) while among CEA the most of cases were ASA II - III (53%), no ASA IV was found in this group. Comorbidity and risk factors are similar in both groups. All patients underwent Duplex scan and MRI diffusion weighted or CT scan, and supraortic trunks were studied with MRA or Angio CT scan.
Results: In CAS group we observed 2 TIA (6.4%) and 1 minor stroke (3.2%), while in CEA group we had 1 minor stroke (3.5%) and 1 fatal stroke (3.5%). Total cardiologic complication rate was 1.6% (one M.I. in CAS group). Mortality rate was 1.6% (fatal stroke in CEA group).
Conclusion: In our experience total complication rate in elderly patients (including major stroke, minor stroke and MI in both groups) was 6.7% that was nearly similar to complication rate of younger patients (4.4%). We observed an higher complication rate in elderly patients who underwent CAS than those treated with CEA, but in the CEA group the complications occurred were more serious (one fatal stroke). Besides in our patients most of CAS morbidities occurred expecially when we used a transfemoral approach, probably due to cerebral embolization during arch catheterism. We hypothesize that cervical approach could reduce embolisms and the complication rate. In conclusion we consider CAS a valid alternative to CEA and elderly patients should not be denied this form of treatment of course we need more data from the ongoing trials.

V02 - 6
RECONSTRUCTIVE SURGERY ON CAROTID ARTERIES BY DIFFERENT CLINICAL FORMS OF ISCHEMIC DAMAGE OF EYE
Gavrilenko V.A., Avetisov E.S., Kiseleva N.T., Kuklin V.A., Sashnina V.A.
National Research Center of Surgery, Moscow, Russian Federation; Research Institute of Eye Diseases RAMS, Moscow, Russian Federation

Objective: To determine indications to carotid reconstructive surgery by different clinical forms of ischemic damage of eye.
Methods: One hundred and sixty five patients with ocular ischemic syndrome (OIS) have been examined; 95 of them suffered from acute form of the disease, 70 patients had chronic type. 73(44.2%) patients have been done medication and 92 (55.8%) patients were operated. In all cases we measured blood flow of the following vessels: the internal carotid artery (ICA), the ophthalmic artery (OA), the central retinal artery (CRA), the posterior cilliary artery (PCA). Indications to surgery were based on existing of confirmed of hemodynamic significant stenosis of ICA (more than 70%) in patients with unilateral neurological, ophthalmologic signs and determination of any types of atherosclerotic plaques; existing of impairment of blood flow in arteries of eye and stenosis 50-70%; appearing in ICA atherosclerotic plaques I, II and III types, having uneven and ulcerated almost without neurological symptomatic. Carotid endarterectomy was performed in 76.1% patients; eversion carotid endarterectomy in 15.2% patients, resection of the ICA with prosthesis in 8.8% patients. All operations had unilateral character.
Results: After surgery and in course of one and two years it was marked improving of visual functions. There also were the positive dynamics of changes of visual fields as increasing of photosensitivity, reducing or disappearing of zones of local depression; improving of indices of functional activities of retina and optic nerve. The rehabilitation normal of blood flow in OA in patients with preoperative retrograde of blood flow was found. Doppler spectrum analysis of blood flow of ocular vessels showed increasing of the amplitude of the peak systolic wave and appearing diastolic flow in CRA and PCA; increasing maximum systolic and end-diastolic velocities of blood flow and decrease of the resistance index in arteries of eye.
Conclusion: Reconstructive operations on carotid arteries were performed by stenosis of ICA till 5070% with embolic danger of atherosclerotic plaques. It allowed to improve functional and hemodynamic parameters of eyebulb in patients with different clinical forms of ischemic damage.

V02 - 7
CAROTID STENOSIS: SURGICAL TREATMENT IN SO-CALLED HIGH RISK PATIENTS
Pedrini L., Pisano E., Pilato A., Cirelli Rosaria M., Magnoni F., Sensi L.
Operative Unit of Vascular Surgery - Ospedale Maggiore, Bologna, Italy

Objective: Carotid surgery is validated by international trials and by long term results after more than 50 years experience. Ethical doubts induced by the endovascular treatment (CAS) forced to find subgroups at high risk for surgery. Many papers tried to confirm the definition of high risk patients, on the basis of their series. The purpose of this study is to search the role of the reported risk factors in a single centre experience.
Methods: History, operative and follow-up data of 1418 patients submitted to CEA between 1996 and 2003, prospectively recorded have been analysed. They are 985 males and 433 females, mean age 69.8 (41-87 years); 96 were over 80; 6 had neck-cancer treated by surgery and radiotherapy.?? Arteriotomy closure with running suture in 749, with a polyester patch in 583, eversion EA in 61. All of the patients were operated under general anaesthesia. Since 1997 they had a Near Infrared Spectroscopy monitoring and a completion ultrasound evaluation.
Results: Operative mortality + stroke (M+S) was 1.19% (9 death and 10 stroke, 1 fatal and 2 major). Patients were divided into 4 age subgroups (<=70, 71-75, 76-80 e >80); risk factors, complications and death were analysed in the subgroups and compared. The older p. had a greater incidence of hypertension, diabetes, POD, CAD, CRF. M+S were not statistically different (1.6, 0.99, 1.11, 1.04 for age <=70, 71-75, 76-80 and >80, respectively). The incidence of AMI was greater in the oldest group (3.12 vs. mean 1.12; $P = 0.2$). Contralateral occlusions was not associated with a higher stroke incidence; patients with important ischemic lesions at brain CT-scan were shunted even with a negative monitoring. The incidence of M+S was 1.35% in 74 p. operated on for restenosis; 1 out of 6 cases with previous neck surgery and radiotherapy suffered a TIA; these 2 groups experienced a greater incidence of cranial nerve lesions and hematomas.
Conclusion: Our results suggest that many of the risk factors reported in protocols for carotid stenting cannot be considered “true” one. In particular contralateral occlusion, age and common risk factors are not related with increased M+S. Patients >80s have a greater risk of AMI and patients with restenosis or neck surgery have a greater incidence of local complications, to consider these patients (like those with unstable angina or recent AMI) the ideal candidate for CAS, even if some recent experiences show worse results of CAS in elderly people.

V02 - 8
ABILITIES OF THE BRAIN AUDITORY EVOKED POTENTIALS AND PHOTO-REACTIVITY TEST FOR DETERMINING THE INDICATIONS FOR SURGERY ON VERTEBRAL ARTERIES
Sokurenko G.Yu., Kandiba D.V., Zhulev N.M.
St. Petersburg Medical Academy of Postgraduate Education, Russia

Urgency of the problem. Considering the instability of hemodynamics in the vertebral-basilar basin vessels and complexity of determining the pathognomic significance of the vertebral artery extracranial segments for cerebral ischemia, we have proposed a new method of assessment of the brainstem functional condition, the method proving to be important for determining the indications for surgical intervention in the extracranial arteries.
Material and methods of the study. 46 patients aged 31 to 68 were examined, the patients suffering from vertebral-basilar failure. The main clinical manifestations involved: the vestibular-cerebellar syndrome - in 42 (91%); fainting fits - in 17 (36%); transitory ischemic attacks - in 28 (61%); ischemic stroke - in 9 (19%) patients. Functional tests consisted of two successively carried out techniques: the first one - the brainstem auditory evoked potentials of the brain recorded with the Nicolet Viking select machine using additional high-frequency stimulation; the second one: ultrasonic Dopplerography using the EME Nicolet Companion device with additional photo-stimulation and calculation of the photoreactivity index for posterior cerebral arteries. Of the 46 patients in 18, surgery was performed on the vertebral artery.
Results of the study. In 43 (93.4%) patients, various dysfunctions were revealed in conduction at the level of either auditory nerves and/or brainstem. In 39 (84.7%) patients, the dysfunction of impulse conduction along the auditory pathways in the brainstem coincided with the side of the vertebral artery lesion. In 14 of the 18 patients examined in 6 months following the surgery on the vertebral artery, a positive dynamics of the evoked potential parameters was observed. In all 46 (100%) patients under study, a decrease in the photoreactivity index below 20% was observed, and in 19 (41%) patients, the index even became negative. In 16 of 18 patients examined after 6 months following the surgery on the vertebral artery, an increase of the photoreactivity index occurred.

Conclusions. A high sensitivity of the method of cerebral vessel photoreactivity study as well as of the modified method of investigation into the brainstem auditory evoked potentials has been shown in estimation of functional condition of the brainstem and the brain occipital lobes in patients with pathological conditions of extracranial segments of the vertebral arteries. This can be used for determining the indications for surgery on the vertebral artery as well as for assessment of efficacy of the conservative/surgical prophylactics of ischemic vertebral-basilar stroke.

16.30-18.00
MAY 12, 2006 2ND CONGRESS DAY

3RD CARDIAC SCIENTIFIC SESSION
RABAGO PRIZE

RP - 1

ULTRASTRUCTURAL SUBSTRATES OF HEART REMODELING IN PATIENTS WITH EXTENSIVE POSTINFARCTION CARDIOSCLEROSIS

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Tomsk Centre of Cardiology, Tomsk, Russian Federation

Objective: Ischemic heart disease, complications of which are ischemic cardiomyopathy and chronic heart failure, until now remains to be one of the most widely-spread progressing and predictably unfavorable diseases of cardiovascular system. Different kinds of reconstructive operations combined with CABG take leading place in complex treatment of such pathology. Nevertheless follow-up results show that in a part of the operated patients repeated remodeling of left ventricle (LV) and heart failure progressing take place. In the analyzed literature we have not found data of possible ultrastructural predictors of heart remodeling in the post-operative period. That is why the aim of our work is to study ultrastructural peculiarities of myocardium cardiomyocytes of right atrium (RA) auricle and LV in patients with ischemic cardiomyopathy.
Methods: The object of the study is myocardium of LV and that of RA in 10 patients with surgically repaired LV combined with performed CABG. Clinical criteria of patients inclusion into the given study were the following: age from 42 to 56, LVEDV >180 ml, LVEDP > 30 mmHg, LVEF<40%, presence of LV parts with a- and dyskinesis, angina (III-IV CCS), heart insuf-ficiency III NYHA, duration of ischemic heart disease from 1 to 5 years, hemodynamically significant atherosclerotic lesions of 2-4 coronary arteries. Electron-microscopics methods of study were used at work.
Results: Electron-microscopics study showed signs of regenerative - plastic insufficiency of cardiomyocytes of both LV myocardium and RA auricle, such as: myophibrilles "melting" at no restoration in proper size, exposure of perinuclear space, impairment of newly formed myophi-brilles normal orientation, their redundant length growth. Found dispersed nucleoli, segregation of fibrillar and granular components, annular nucleoli were evidences of biosynthesis depression of RNA. Noticed multiple contractures of myophibrilles, their primary clump disintegration de-noted permanent alternative processes taking place. Cistern and vacuole of sarcoplasmic reticu-lum are reduced, sometimes widened. There were noticed massive endocellular and pericapillar edemas, capillars sclerosing with basic membrane thickening and reduction of their carrying capacity, reduction of lumen and rugosity of endothelial cells luminal surface.
Conclusion: Morphological picture of RA auricle myocardium is in some respect "the mirror" of morphological condition of LV myocardium in patients with ischemic cardiomyopathy. Ultrastructural study revealed mixed, alterative and regenerative-plastic insufficiency of LV and RA auricle myocardium cardiomyocytes in patients with ischemic cardiomyopathy, which is a substrate of progressing heart dilatation and insufficiency.

RP - 2

ONE HOUR DEEP HYPOTHERMIC CIRCULATORY ARREST DOES NOT GENERATE DETECTABLE HISTOLOGICAL INJURY IN THE NEONATAL BRAIN IF POSTOPERATIVE CARE IS OPTIMAL

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Objective: Brain injury following neonatal cardiopulmonary bypass (CPB) has historically been attributed to periods of deep hypothermic circulatory arrest (DHCA). Various more complex continuous perfusion strategies have resulted, although functional neurological recovery has not necessarily improved. Because historical reports frequently employed animal models lacking hemodynamic support or histological controls, we sought to examine the cerebral impact of modern DHCA in a carefully controlled survival piglet model involving full intensive care therapy.
Methods: A model of open-chested aorto-atrial CPB with myocardial protection was used in a laboratory with full intensive care facilities for animals. 30 neonatal piglets (2-5 kg) were randomized to protocols of progressively worsening DHCA and longer reperfusion periods. Non-CPB controls were instrumented and supported for 0. 8 or 24 h. Non-ischemic CPB controls were subjected to 2 h of warm full-flow, deep hypothermic full-flow or deep hypothermic low-flow CPB and 24 h recovery. Experimental (ischemic) animals were exposed to either 60 or 120 mins DHCA at 18 ºC and recovered for 2, 8 and 24 h. Following separation from CPB, the animals were managed anesthetized and ventilated with full invasive monitoring, inotropes and fluid support for the entire experimental duration. Following perfusion-fixation, the brains were scored for histological evidence of ischemia by examiners blinded to the experimental protocol, using light and histochemical fluorescence microscopy for neurodegenerative marker Fluoro-Jade™.
Results: Peri-operative parameters were not different between groups. All animals (control and experimental) reperfused for 8 h or less exhibited no evidence of ischemic injury, and were completely indistinguishable, regardless of duration of DHCA (regional histological scores 0 in every animal in all regions (neocortex, basal ganglia, hippocampus and cerebellum). 60 min of DHCA followed by 24 h reperfusion yielded brains indistinguishable from controls. 120 min of DHCA and 24 h reperfusion generated mild ischemic injury (overall score 7.24±4.5). Positive Fluoro-Jade™ or immunohistochemistry for apoptosis markers (cleaved caspase-3) was noted only in this latter group.
Conclusion: This study utilizing meticulous perioperative care failed to generate ischemic brain injury following 60mins DHCA, contrary to numerous previous reports. These earlier studies have frequently lacked histological controls, and typically do not involve intensive post-CPB management. 120 mins DHCA only yielded ischemic changes when the reperfusion period was extended to 24 h, highlighting the importance of adequate reperfusion periods. The experimental evidence denouncing DHCA appears flawed. We suggest meticulous peri-operative support may be more important than the role of DHCA in the propagation of neonatal brain injury.

RP - 3

HEART VALVE SURGERY IN VERY HIGH RISK POPULATION. A PRELIMINARY EXPERIENCE IN AWAKE PATIENTS

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Objective: Heart valve surgery in high risk patients is associated with a considerable morbidity and mortality. Epidural anesthesia without mechanical ventilation has been proposed as a new technique to reduce invasiveness. Aim of the study was to determine whether this technique is [1] useful and [2] may guarantee better results than general anesthesia.
Methods: We conducted a prospective follow-up study in 50 consecutive pts (24 females and 26 males; female mean age 77±8 years; male mean age 71?10 years) who underwent heart valve surgery with epidural anesthesia without endotracheal-intubation. Pre-operatively the entire population was in New York Heart Association functional class III or IV and 8 pts (16%) had previous cardiac procedure. The median Additive and Logistic EuroScore (% mortality) were 14.5 and 52%, respectively. Twenty-seven patients underwent aortic-valve replacement, 10 mitral-valve replacement, 10 mitral-valve repair, 2 double-valve replacement, and 1 ascending aorta replacement. Associated surgical procedures included CABG in 12 pts (24%), left ventricle reshaping in 2 case (4%). The patients were prospectively followed-up and a 6-month quality of life assessment was performed in all survivors. Propensity-matching for the available patient intrinsic and operative-risk factor was finally used to investigate whether epidural- or general-anesthesia impacts outcomes after valve surgery.
Results: The procedures were performed without using mechanical ventilation in completely awake and conscious patient. By propensity score 13.4% of our cardiac valve procedures in general anesthesia (48/356) was perfectly matched for the available risk factors with an equal distribution of the risk covariates. Operative mortality was 4% (awake) vs. 8.3% (general) (P<0.05). Peri-operative complications were as follows: myocardial infarction 0% vs. 10% (P<0.05), IABP insertion 0% vs. 10% (P<0.05), acute-renal-failure 33% vs. 46% (P = NS), prolonged mechanical-ventilation 4% vs. 23% (P<0.05), neurological 0% vs. 8.3% (P<0.05), bleeding 16.6% vs. 10% (P = NS).
Conclusion: Heart valve surgery on cardiopulmonary-bypass is feasible and safe using epidural anesthesia. Maintaining an autonomic ventilation, we significantly reduced the peri-operative complications of patients with an unacceptable operative risk in comparison with patients with the same propensity score operated-on in general anesthesia.

RP - 4

GADOLINIUM CHLORIDE ATTENUATES AORTIC OCCLUSION-REPERFUSIONINDUCED MYOCARDIAL INJURY IN RATS

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Objective: Aortic ischemia and reperfusion periods, which are often associated with infrarenal abdominal aortic cross-clamping and declamping, cause injury in distant organs including the heart. We recently reported that Kupffer cell blockage with gadolinium chloride attenuates lung injury induced by aortic ischemia-reperfusion. Therefore, we hypothesized that Kupffer cell blockage with gadolinium chloride may attenuate myocardial injury induced by aortic ischemia-reperfusion. To test this hypothesis, we studied the effect of gadolinium chloride on myocardial injury induced by abdominal aortic occlusion-reperfusion in rats by measuring the tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase in rat heart specimens.
Methods: Wistar-Albino rats (eight per group) were randomized into three groups. The control group underwent midline laparotomy and dissection of the infrarenal abdominal aorta without occlusion; the aortic ischemia-reperfusion group underwent laparotomy and clamping of the infrarenal abdominal aorta for 30 min followed by 60 min of reperfusion; and the gadolinium chloride + aortic ischemia-reperfusion group was pretreated with intravenous gadolinium chloride 10 mg/kg 24 h before the aortic ischemia-reperfusion.
Results: We found that aortic ischemia-reperfusion significantly increased oxygen free radical production, lipid peroxidation and neutrophil activation in the heart tissues of the rats as measured by the tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase. Pretreatment with gadolinium chloride significantly reduced the tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase.
Conclusion: In conclusion, our results indicate that Kupffer cell blockage with gadolinium chloride attenuates the myocardial injury induced by aortic ischemia-reperfusion. We think that the novel findings of the present study may be a basis for further studies investigating the role of gadolinium chloride pretreatment in reducing myocardial morbidity and mortality caused by aortic ischemiareperfusion during aortic surgery.

RP - 5

COMBINED CELL THERAPY USING SKELETAL MYOBLASTS AND AC-133 PROGENITORS REDUCES INFARCT SIZE, APOPTOSIS AND IMPROVES CARDIAC FUNCTION IN A MODEL OF CHRONIC MYOCARDIAL ISCHEMIA

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Objective: Cellular cardiomyoplasty using skeletal myoblasts or angiopoietic progenitor cells offers a promising approach for the treatment of ischemic heart failure. Although several studies have shown encouraging results in settings of acute and semi-chronic myocardial infarction, the efficacy of cell therapy on the chronic ischemic heart remains undetermined.
Methods: A model of chronic ischemia was created using LAD-ligation in nude rats. Culture medium©, homologous skeletal myoblasts (SM), human AC-133+ cells (SC) and both homologous skeletal myoblasts and human AC-133+ cells (SM-SC) were injected in the infarct (SM) and peri-infarct area (SC) four weeks after infarction. Assessment of myocardial function was performed using echocardiography 8 weeks after injections. Infarct size, collagen deposits and cardiomyocyte apoptosis were quantified to evaluate the effect cell injections using histology.
Results: Echocardiographic studies revealed an amelioration of left ventricular dilatation in animals receiving combined cell transplantation (LVEDD: SM, SC, SM-SC, C: 7.5±1.5, 7.1±1.6, 5.7±0.8 and 7.7±0.09, $P = 0.003$). Left ventricular ejection fraction improved significantly in all three cell therapy groups but no additional benefit was observed in the SM-SC group (SM, SC, SM-SC, C: 63.5±13.8, 63.3±7.8, 68.2±5.6 vs. control: 48.6±8.9, $P = 0.0017$). Quantification of scar tissue showed a significant reduction of infarct area in the SM-SC group (SM, SC, SM-SC, C: 22.3±9.1%, 19.8±7.6%, 13.2±5.8%, 36.5±8.2%, $P = 0.008$). Improvement of myocardial function was associated with reduced apoptotic index in animals after cellular cardiomyoplasty (SM, SC, SM-SC, C: 3.2±0.9, 3.1±0.6, 1.8±0.8, 10.3±1.6, $P = 0.0002$).
Conclusion: Combined tranplantation of skeletal myoblasts and AC-133 angiopoietic progenitor cells leads to improvement of diastolic and systolic left ventricular function, and reduction of scar size and myocardial apoptosis in a model of chronic ischemia.

RP - 6

A SURVIVAL PIGLET INVESTIGATION INTO CURRENT PEDIATRIC PERFUSION TECHNIQUES: DEEP HYPOTHERMIC CIRCULATORY ARREST IS THE IDEAL COMPROMISE

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Objective: Lengthy uninterrupted deep hypothermic circulatory arrest (DHCA) has been implicated in the pathogenesis of neonatal brain injury. As a result, more complex techniques have been introduced including intermittent (IP), selective cerebral (SCP) and deep hypothermic low-flow (DHLF) perfusion – both to reduce cerebral ischemia and the need for deep hypothermia. Because neither the systemic nor cerebral consequences of some of these techniques are fully understood, we investigated the use of DHCA, DHCLF, moderate hypothermia+IP and warm full-flow (FF) in a survival model of neonatal CPB.
Methods: Fifteen neonatal piglets (2-5 kg) were randomised to either: I - instrumented controls; II - normothermic full-flow bypass (37 FF); III - 60 mins circulatory arrest at 25ºC with 2 mins intermittent perfusion every 10 mins (25IP); IV - 60 mins deep hypothermic continuous low-flow at 18 ºC (50cc/kg/min) (DHCLF); or V - 60mins deep hypothermic circulatory arrest at 18 ºC (DHCA). Following full rewarming, animals were separated from CPB and managed with full invasive monitoring for 24 h in an intensive care environment. After this period the brain was perfusion-fixed and scored for evidence of ischemic injury using light and histochemical fluoroscopic techniques. Data was also accrued for hemodynamic, respiratory and acid-base status in addition to serum [TNFa] and cerebral blood flow (fluorescent microspheres technique).
Results: There were no significant differences in peri-operative hemodynamics. All animals in all groups were indistinguishable by cerebral light microscopy, caspase-3 (apoptosis) immunohistochemistry or Fluoro-Jade(tm) histochemical fluoroscopy (ischemic neuronal degeneration). Despite the inclusion of positive control slides (ischemic piglet cerebrum), blinded examination did not detect ischemic neurons in any of the experimental animals. Group III was significantly more acidotic than V on rewarming (base deficit -14.3±2.5 vs. +0.6±7.6, $P<.001$), required more bicarbonate (23.3±4.7 vs. 12.6±2.7, $P<.05$) and required more inotropes (123±67 vs. 68±19 units). A trend towards higher circulating TNFa was seen in group II, III and IV vs. group V though this was not significant with the animal numbers used.
Conclusion: This study does not imply a histological advantage in avoiding DHCA through the use of continuous or intermittent perfusion techniques. In contrast, the introduction of intermittent perfusion at moderate hypothermia instead resulted in greater post-operative acidosis and higher inotrope requirements. Furthermore, a trend towards greater systemic inflammation with continuous flow techniques (seen here and confirmed by others) may imply that DHCA is a preferred compromise by reducing systemic inflammation, limiting acidosis and providing optimal operative exposure whilst still affording good histological cerebral protection.

RP - 7

RISK OF PATIENT-PROSTHESES MISS-MATCH FOLLOWING MITRAL VALVE REPLACEMENT WITH A SMALL SIZED STENTED BIOPROSTHESIS

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Objective: The risk of patient-prosthesis miss-match following mitral valve replacement has not been fully clarified yet. In this study we investigate early postoperative hemodynamic performances and clinical outcome in patients receiving a small sized stented bioprostheses to clarify the real risk of "Mitral Patient-Prostheses Mismatch".
Methods: 93 consecutive patients undergoing MVR and receiving a porcine or pericardial Edwards stented bioprosthesis were enrolled in the study. Postoperative outcome of patients receiving a prosthesis size 25 or 27 (Group SSP - 20 pts) was compared to those receiving a bigger prosthesis (Group NSP - 73 pts). Postoperative early hemodynamic performances and clinical outcomes were compared between two groups.
Results: 2 patients died in hospital (cumulative mortality 2.1%, no differences between two groups). No significant differences were founded in early clinical outcome in terms of major complications, prolonged ventilation and prolonged ITU stay between two groups. Furthermore, despite the significative difference in the valve size implanted (26.8±0.4 and 30.5±1.6 for group SSP and NSP respectively) and in predicted effective orifice area (0.93±0.19 and 1.42±0.35 cm^2/m^2 for group SSP and NSP respectively), no

significant differences were found in early postoperative hemodynamic performances between two groups. Postoperative EOAI (1.55±0.5 and 1.47±0.5 cm^2/m^2 for group SSP and NSP respectively), Peak Gradient (13±3 and 11±4 mmHg for group SSP and NSP, respectively) and Mean Gradient (4±2 for both groups) were indeed similar regardless the size of bioprosthesis.

Conclusion: Preoperative predicted effective orifice area seems to overestimate the risk of patient prosthesis mismatch using small sized stented bioprostheses. Our study shows that postoperative hemodynamic performance of stented bioprostheses are not correlated to the size of the valve. MVR using small size stented bioprostheses, therefore, seems not carry a real risk of postoperative patient prosthesis mismatch.

16.30-18.00
MAY 12, 2006 2ND CONGRESS DAY

4TH CARDIAC SCIENTIFIC SESSION
AORTA

C04 - 1

ARE THERE CONSEQUENCES FOR THE ASCENDING AORTA FOLLOWING AORTIC VALVE REPLACEMENT?

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Objective: Concomitant surgery of the mildly dilated ascending aorta in patients undergoing aortic valve replacement is controversial because progress of aortic dilatation after elimination of the valvular lesion is uncertain. Study aim is to analyze the ascending aorta following aortic valve replacement and to define criteria for concomitant aortic surgery in patients with mild aortic dilatation undergoing AVR.
Methods: Between 2/1994 and 5/1999, 100 patients underwent aortic valve replacement with the Mosaic bioprosthesis within a prospective multicenter FDA approval study. Patients were followed-up postoperatively, after 6 months and annually by documentation of adverse events and transthoracic echocardiography. Mean follow-up was 4.8 years (range 0.1-8.8 years), and total follow-up included 483.4 patient-years.
Results: During follow-up, diameters of aortic sinus (P<0.001; expansion rate 0.9±3.3 mm/year) and sinotubular junction (P = 0.003; expansion rate 0.8±4.2 mm/year) increased significantly, whereas the ascending aortic diameter did not change significantly (P = 0.755; expansion rate 0.3±3.7 mm/year). In patients with baseline ascending aortic dilatation >=40 mm, which was present in 10.2% of the patients (mean aortic diameter 42.5±2.6 mm), ascending aortic diameter decreased significantly during follow-up (P = 0.032; expansion rate -1.9±2.0 mm/year). Larger baseline aortic diameters were associated with smaller postoperative annual aortic expansion rates (r=-0.47, P<0.001). Baseline aortic dilatation had no influence on postoperative morbidity and mortality rates. None of all patients reached critical aortic diameters and none had to be reoperated for aortic dilatation or dissection. Prosthetic regurgitation was associated with increases of the aortic sinus (P = 0.017), sinotubular junction (P<0.001) and ascending aorta (P<0.001). Survival was significantly lower in patients with aortic expansion rates >3.6 mm/year (0.0% vs. 68.2±9.7%; P<0.001).
Conclusion: Unchanged morbidity and mortality rates and decreases of aortic dimensions in patients with mild aortic dilatation undergoing aortic valve replacement indicate a spontaneous remodeling of the ascending aorta after removal of the diseased valve and argue against concomitant aortic surgery. Aortic growth rate was proven to be of strong prognostic importance.

C04 - 2

AORTIC VALVE SPARING OPERATIONS: A SINGLE CENTRE EXPERIENCE

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Objective: Aortic valve-sparing operations have provided very good clinical outcomes in aortic root and ascending aorta pathology associated with aortic valve insufficiency. Aortic valve repair still represents an exciting challange for cardiac surgeons. We reviewed our total experience with aortic valve-sparing operations to determine early and mid-term outcomes.
Methods: Between July 2001 and December 2005, 105 patients underwent aortic valve-sparing operations. There were 82 male (78%) and 23 female (22%) patients with a mean age of 55.5±15.1 years. Seven patients suffered from Marfan's Syndrome and 19 had a congenital bicuspid aortic valve (18%). Acute type A aortic dissection was present in seven (6.6%) patients while type B dissection in ten (9.5%). Seventy-eight patients were treated with a David I reimplantation technique; the Gelweave Valsalva^{TM} graft was implanted in 70 of them. Twenty-three patients had an ascending aorta replacement with sinotubular junction reduction. Four patients had an aortic root remodelling. Twenty-six patients (24.7%) had associated cusps repair.
Results: There were 4 in-hospital deaths (3.8%) and 2 late deaths. In elective conditions only 1 patient died whereas five deaths were observed in type A acute aortic dissection operations. Seven patients developed 3 to 4+ AI and five of these required late AVR. The 3-year survival for patients with aortic root aneurysm was 95.4±2.6%, and for patients with ascending aortic aneurysm 89.2%±7.3 (P = 0.464). Three-years freedom from grade 3-4 AI was 88.9±5.2% for patients with aortic root aneurysm and 88.2±7.8% in those with ascending aortic aneurysm. Freedom from late AVR was 92.2%±4.9% in patients with aortic root aneurysm and 88.2±7.8% in those with ascending aortic aneurysm at three years.
Conclusion: Aortic valve-sparing operations showed excellent results in patients electively operated for aortic root ectasia, while the results in acute aortic dissection were disappointing. The Gelweave Valsalva^{TM} prosthesis demonstrated ease of implantability and good reproduction of the pseudosinuses. Long-term follow up is necessary to determine if this graft will enhance the function and increase the durability of the aortic valve.

C04 - 3

NINE YEARS EXPERIENCE OF ANTEGRADE SELECTIVE CEREBRAL PERFUSION

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Objective: There are more and more convincing results about the efficacy of the brain protection through Antegrade Selective Cerebral perfusion (ASCP). In our Institute, until today, we achieved a large experience with this kind of technique and we use it routinely in every kind of surgery involving the aortic arch with very satisfactory results. It has been applied both in case of selective intraluminal cannulation than combined with axillary cannulation.
Methods: In our Institution from November 1996 to September 2005, 296 consecutive patients underwent Antegrade Selective Cerebral Perfusion: 100 (33.7%) were urgent/emergent cases and 196 (66.3%) were elective cases. 156 (52.7%) patients received ascending aorta and aortic arch replacement; 76 (25.6%) ascending aorta and emiarch replacement; 36 (12.1%) aortic arch replacement; 15 (5,0%) complete thoracic aorta replacement; 11 (3.7%) aortic arch and descending aorta replacement and 2 (0.6%) patients other kind of correction. Arch vessels reimplantation was performed as separeted graft in 139 patients (64.3%) and as en bloc reimplantation in 78 patients (35.7%). In case of single arch vessels reimplantation, this one is performed at the end of the surgery during coronary reperfusion and rewarming on beating heart.
Results: The mean CardioPulmonary Bypass (CPB) time was 187.9+60.2 min (min 82 - max 440); mean Myocardial Ischemic Time was 122.2+45.2 min (min 31 - max 283); mean ASCP time was 59.7+35.7 min (min 10 - max 254); mean Nasopharingeal Temperature (°C) was 23.2+1.4 (min 18 - max 26) and mean Rectal Temperature (°C) 25.8+2.7 (min 21 - max 28). Hospital mortality was 38/296 patients (12.8%): 17% (17/100 pts) in urgent surgery (P = 0.01). We observed permanent neurologic deficit in 5 patients (1.6%) and transient neurologic deficit in 20 patients (3.4%).
Conclusion: ASCP in our experience is the best way to protect the brain during aortic arch surgery: a right management of ASCP amplifies its advantages like moderate hypothermia and a better cerebral perfusion and it allows to perform safely even complex reconstructions of the thoracic aorta.

C04 - 4

MINIMIZING BIOLOGIC GLUE-RELATED COMPLICATIONS AFTER SURGICAL REPAIR OF ACUTE TYPE-A AORTIC DISSECTION

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Objective: To evaluate the effect of our modified glue-repair technique on glue-related complications after acute type-A aortic dissection repair.
Methods: From August 1994 through March 2005, biologic glue was used for acute type-A aortic dissection repair in 92 patients (Gelatin-Resorcin-Formaldehyde glue in 88, BioGlue in 4). Since January 2001, we have been using a modified Gelatin-Resorcin-Formaldehyde glue-repair technique, the key aspects of which are; 1.Creation of a neo-media using pieces of thin-walled knitted polyester placed in the false lumen, 2.Keeping the amount of Formalin to a minimum using tuberculin syringe, 3. Applying pressure on

the aortic layers with a special clamp to facilitate polymerization of the glue components, 4. Reconstructing the whole extent of the dissected aorta rather than just around the suture lines. We divided our experience with biologic glue into 2 eras; the early series (before January 2001) comprised 59 patients while the late series comprised 33 patients.
Results: In-hospital mortality in the early series was 10.2% which dropped to 3% in the late series. Seven patients (12%) in the early series developed aortic root re-dissection 5 to 71 months after the initial operation. Suture dehiscence occurred in most of these re-dissections that resulted in severe aortic regurgitation due to prolapse of the non-coronary aortic cusp into the left ventricle leading to congestive cardiac failure. On the other hand, there has been no such complication thus far in the late series with a maximum follow-up of 51 months.
Conclusion: Gelatin-Resorcin-Formaldehyde glue-related complications after acute type-A aortic dissection surgery can be considerably minimized with an appropriate technique.

C04 - 5
ELECTIVE SURGERY FOR ANEURYSMS OF THE AORTIC ROOT: COMPARISON OF AORTIC VALVE-SPARING REIMPLANTATION USING THE VALSALVA CONDUIT VERSUS COMPOSITE GRAFTING
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Objective: To compare the 3 years results of the aortic valve-sparing reimplantation by means of the modified conduit incorporating sinuses of Valsalva, with mechanical valve conduits in patients undergoing elective operation for aortic root aneurysms.
Methods: During 3-year period, 108 patients with aneurysm of the aortic root underwent aortic valvesparing reimplantation using the Gelweave Valsalva™ prosthesis (group A, *n* = 53) or composite graft replacement with mechanical valve conduits (group B, *n* = 55). The two groups of patients had similar demographic characteristics. Two patients in each group had the Marfan syndrome.
Results: Patients in the group A had longer intraoperative aortic cross clamp time (100 vs. 79 min, *P*<0.001) and longer cardiopulmonary bypass time (129 vs. 100 min, *P*<0.001), compared with patients in group B. In-hospital mortality was 0% in group A and 3.6% in group B (*P* = 0.1). The mean follow up time was 24 months (range 1-44 months). Survival at 3 years was 100% in group A and 93.2±5.1% in group B (*P* = 0.3). Freedom from reoperation at 3 years was 89.1±7.0 in group A and 90.5±6.8% in group B (*P* = 0.1). Thromboembolic complications rate was 0% in group A and 3.6% in group B (*P* = 0.1).
Conclusion: The results of aortic valve-sparing reimplantation using the Gelweave Valsalva prosthesis and composite grafting of the aortic valve and ascending aorta with mechanical valve conduit, are similar in terms of early and 3 years mortality and incidence of reoperations. The patients that underwent composite graft replacement had a higher incidence of thromboembolic events although it didn't achieve statistical significance. Our satisfactory results support the use of the valvesparing procedure by means of the Valsalva prosthesis in this conservative approach to aortic root aneurysms, provided that the indication must be achieved after careful and, case by case evaluation.

C04 - 6
ASCENDING AORTOPLASTY: SIX YEARS FOLLOW UP
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Objective: Ascending aortoplasty is an alternative technique that may have several advantages in selected cases. We report 6-year follow-up of this tecnique.
Methods: From January 1998 to December 2005, 80 patients underwent aortic valve replacement and reduction aortoplasty. The mean age was 61.6±12.3 years, 48 patients were male (60.0%). All patient underwent preoperative echocardiography and a computed tomographic scan of the chest to evaluate the diameter of the ascending aorta at pulmonary artery biforcation. The mean preoperative aortic diameter was 49.7±6.9 mm (range 38-70).
Results: There was no perioperative morbidity and one perioperative death (1.47%) for acute dissection of the aortic arch. Three patients died at follow-up, one for cerebral infarction, one for pulmonary cancer and one for prostates cancer. One patient had a transient cerebral ischemia at 16 months, with no actual neurological damages. Kaplan -Meier survival was 83±1.7% at 78 months, while freedom from cardiac-related was 94%±5.0. At follow up five patients underwent aortic redilatation and 3 of them needed reoperation. Freedom from redilatation was 76±9.8, while freedom from reoperation at 78 months was 83±9.2. Lox regression analysis performed to identify risk factors for redilatation: only preoperative diameter >55mm was defined a risk factor. The evaluation of aortic diameter at follow up demonstrated a significant, as expected, decrease respect to baseline after surgery, while no further changes in aortic diameter documented at follow up.
Conclusion: This experience confirms that, at 6 years follow up, ascending aortoplasty is a low risk alternartive tecnique that shows the best results for preoperative aortic diameters less than 55 mm.04 - 7

C04 - 7
THE HYBRID APPROACH FOR ONE STAGE REPAIR IN COMPLEX TYPE A AORTIC DISSECTION
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Objectives: In standard surgical repair of acute Type A aortic dissection the descending aorta remains untreated, causing malperfusion and secondary rupture in up to 5%. Whereas 20% of the patients require a second stage procedure. For hypothetic one stage repair we developed an integrated stentgraft dacron prosthesis, consisting of a stentgraft device with a vascular prosthesis in direct continuity.
Methods: Between 01.2005 and 12.2005, eight patients (mean age 63±12 yrs) with complex Type A aortic dissection (7 acute and 1 chronic) were treated under emergency conditions with the new E-vita A Open prosthesis (Jotec®, Germany). Preoperative malperfusion was present in 5 pts. (62%). The stentgraft was inserted into the descending aorta after complete resection of the aortic arch using hypothermic circulatory arrest (DHCA) at 24 °C and selective antegrade cerebral perfusion (SACP) at 18 °C. Implant control was performed intraoperatively by TEE. After antegrade stentgraft deployment the integrated vascular prosthesis was extracted for direct arch replacement.
Results: The deployment of the self expanding stentfraft-dacron prosthesis was uneventful in all cases. Mean duration of selective cerebral perfusion was 58 ±15 min. Survival rate is 100% during a mean follow up of 88±91 days. Within the stented region the false lumen of the thoracic aorta thrombosed subsequently in all patients. Postoperative control (CT and TEE) performed 7 days and 3 weeks after surgery demonstrated a reexpansion of the true lumen and restoration of antegrade flow. No endoleaks were detectable and there was no need for a secondary intervention in any patient.
Conclusion: Based on the preliminary data and the short follow up period our results indicate that the integrated stentgraft dacron prosthesis allows for facilitated repair in complex aortic disease. With this tool one stage repair of the entire thoracic aorta seems to be feasible, but this has to be confirmed by long term results.

C04 - 8
FIFTEEN YEARS CLINICAL EXPERIENCE OF USING XENOPERICARDIAL CONDUIT IN BENTALL-DE BONO PROCEDURE
Bockeria L.A, Malashenkov A.I, Rusanov N.I, Bykova V.A, Rychin S.V, Tereshchenko V.I.
Bakoulev Scientific Center for Cardiovascular Surgery, Moscow, Russia

Objective: Aim of the study was clinical investigation of 15-years experience of ascending aorta replacement by Bentall-De Bono technique with composite xenopericardial conduit.
Methods: From 1990 to December 2005, 376 patients underwent ascending aorta replacement with composite xenopericardial conduit. There were 284 male and 92 female. The original diseases were cystic media necrosis in 41% (154 patients), atherosclerosis in 35% (132 patients). Dilatation of the ascending aorta was found in 191 (50.8%); aortic dissection in 185 patients (49.2%). De Bakey type I was in 53 (14%) cases. Forty-seven patients (12.5%) were operated on during the acute phase of the dissection. Repair of the ascending aortic aneurysm was performed with Bentall-DeBono technique in all cases. Biological valves were inserted in 28 (7.4%) xenopericardial conduits and different types of the mechanical valves were used in 348 conduits.

Results: Hospital mortality was 8.1%. The mean follow-up period was 5.6±1.4 years (range 0.5 to 15 years). Conduit-related complications included 6 reoperations caused by 2 mechanical valve thrombosis and 2 structural conduit failures and 1 endocarditis. After 10 years the actuarial survival rate was 89.6% and after 15 years was 64.8%. There were 6 late deaths: 5 patients died of nonconduit causes and 1 died of biological valve structural failure. After 15 years, freedom from biodegradation and calcification is 80%, freedom from endocarditis 89%, freedom from reoperation is 93%.
Conclusions: With a low rate of biodegradation and calcification events at 15 years this conduit is a reliable choice for ascending aorta replacement.

16.30-18.00
MAY 12, 2006 2ND CONGRESS DAY

2ND CARDIOVASCULAR SCIENTIFIC SESSION

CV02 - 1
DISSEMINATED INTRA-VASCULAR COAGULATION AND AORTIC ANEURYSM ENDOVASCULAR TREATMENT
Pesteil F., Chevreuil C., Francois B., Sekkal S., Lacroix P., Cornu E., Laskar J.M.
University Hospital Dupuytren, Limoges, France

Objective: Coagulopathies sometimes occur in patients with aortic aneurysms. Clinical manifestations are exceptional. Disseminated intra-vascular coagulation (DIC) can occur after endovascular treatment of aortic aneurysms. Two cases have already been reported in the literature. The objective of this presentation is to add a new case and to outline the extreme severity of this unknown complication.
Methods: We report the case of a 74-years-old patient with a 60 mm diameter asymptomatic thoracic aneurysm. This patient had a severe hepatic insufficiency. The aneurysm has been treated by an endovascular graft. On the following days he developed a disseminated intra-vascular coagulation.
Results: Despite a complete medical treatment the patient died of his complication. The two other reported cases also died of the disseminated intra-vascular coagulation.
Conclusion: After endovascular treatment of an aortic aneurysm, the activation of coagulation and fibrinolysis has been reported, usually without disseminated intra-vascular coagulation. Hepatic insufficiency and endothelial lesions caused by the catheterism seem to be responsible for the disseminated intra-vascular coagulation after endovascular treatment of an aortic aneurysm.

CV02 - 2
CONVENTIONAL SURGICAL REPAIR OF THORACOABDOMINAL AORTIC ANEURYSM WITHOUT MORTALITY IN HIGT RISK PATIENTS
Bahnini A., Cozmanciuc G., Perret V., Le Blevec D.
Vascular Surgery Unit, American Hospital of Paris, Neuilly sur Seine, France; Clinique Geoffroy Saint-Hilaire, Paris, France

Objective: to evaluate our results of open surgery of thoraco-abdominal aorta aneurysm in higt risk patients.
Methods: Between 1986–2005, 16 patients underwent replacement of the thoraco-abdominal aorta, two patients carry out twice at 2 years interval. Five patients were women. The mean age of the patients was 57 years (range 29-83 years). The adjuncts used in this patients included perioperative cerebrospinal fluid drainage, temporary shunt for thoracic aneurysm, normovolemic hemodilution, cell-saver, full cardiac monitoring including trans-esophageal echograpphy, b-bloker. Intercostal arteries were implanted when possible in distal or proximal anastomosis. There was 4 operative repair for type II, 2 for type III and 12 type IV for thoraco-abdominal aneurysm, Crawford classification. Two patients had prior aortic repair (one AAA and one thoraco-abdominal aneurysm type IV). Thirty-day follow-up was complete for all the patients. Concurrent medical problems included chronic obstructive lung disease in 7, inferior right lobectomie in 1 patient, a history of coronary artery disease in 5 patients, renal insufficiency (creatinine > 30 mg/l) in 2 patients, HTA for all the patients, neoplasm 2 patients. Viceral arteries were reimplantet in 14 patients (82%) and renal arteries in 13 patient (76%). Fast track anesthesia was used for all patients.
Results: Early mortality was 0%. 1 patient (emergency case with mycotic aneurysm) had a paraparesis. Transitory renal failure occured in 2 patients (11%). Intubation after surgery 0 patients. Reoperation for postoperative bleeding:%.
Conclusion: Type II, Type III, Type IV thoraco-abdominal aneurysm surgery can be accomplish with low mortality and morbidity using a uniform approach of modern adjuncts and precise anesthetic and operative management.

CV02 - 3
SURGERY OR DISTAL AORTIC ARCH ENDOPROSTHESIS ? NO : HYBRID AORTIC SURGERY
Rubin S., Falcoz E.P., Pages N.O., Poncet A., Baehrel B.
Department of Thoracic and Cardio-vascular surgery - hôpital Robert Debré, Reims, France, Metropolitan, Department Thoracic and Cardio-vascular surgery - hôpital Jean-Minjoz, Besançon, France, Metropolitan

Objective: Endovascular aortic treatment of the distal aortic arch is often presented as in competition with the classical surgical treatment. In our institution, we realize hybrid surgery of the thoracic aorta since 2000. The gaol of this study is to analyse possibilities to simplify classical aortic surgery by using endoprosthesis and to allow more complex endovascular treatments in association with classical vascular surgery.
Methods: We have analysed 48 aortic endovascular procedures associated or not with a classical cardio-vascular procedure. Surgical procedures, morbidity and mortality have been analyzed. In 6 cases, we have treated aortic cross aneurysm or dissections by conventional aortic surgery with sternotomy and extracorporeal circulation associated to endovascular procedures on the distal aortic arch. In 12 cases, we have realized supra-aortic vessel transposition or bypass without sternotomy to allow an endovascular partial treatment of the aortic arch. In 3 of these cases, we have realized a posterior liberation of the aortic arch by a double bypass to allow a large aortic arch exclusion using uniquely the endovascular approach for the aorta.
Results: The main age of patients treated by hybrid surgery is 67 years old. Morbidity after surgical procedure completed by endovascular surgery is high (33.3%). These two deaths are related to a digestive ischemia in one case and by a probable aortic rupture in a context of electro-mechanical dissociation in the other case. One patient has presented a transient ischemic attack with rapid and total regression of neurological (16.7%) after a double bypass between the right and the left common carotid arteries with an extension for the left subclavian artery. In the group treated by endoprosthesis and supra-aortic vascular procedure, the mortality is near 8%. This single death, in the beginning of our endovascular experience, is related to a retrograde dissection 12 days after endovascular treatment of a type IIIb chronic aortic dissection. The morbidity is represented by a stroke with definitive hemiplegia in one case (8%).
Conclusion: These results confirm that the thoracic aortic surgery stays a surgical challenge. The association of endovascular and surgical procedures can allow difficult treatments of selected thoracic aortic diseases with acceptable results. Surgery and endovascular treatments will be probably most often associated to allow difficult procedures in the aortic cross. We think that Hybrid surgery is the future of thoracic aortic treatments.

CV02 - 4
SINGLE STAGED REPAIR OF COARCTATION AND ASCENDING AORTIC ANEURSYM WITH A NOVEL TECHNIQUE
Guden M., Bayramoglu Z.
Sema Hospital, Istanbul, Turkey

Objective: Aortic coarctation accompanied by ascending aortic aneurmysm and bicuspid aortic valve presents a surgical challenge. The single staged and two staged operative management of the pathology have been described. We describe single staged repair of coarctation and concomittant cardiac pathology via sternotomy with a novel technique.
Methods: A 33-year-old male patient with the diagnosis of ascending aortic aneurysm (5.5 cm.), bicuspid aorta (2+ insuffiency), and aortic coarctation was operated with a novel technique. The operative technigue was arcus aorta-to-descending thoracic aorta bypass with vascutec graft for aortic coarctation and Benthall procedure for the ascending aortic aneurysm. The single staged procedure was performed through median sternotomy. During single staged repair of coarctation accompanied by a concomittant cardiac pathology, the extra-anatomic bypass (ascending aortadescending aorta) is widely performed. Instead of this extra-anatomic bypass, with this novel technique, the graft between the arcus aorta-to-descending aorta follows the route of the native aorta.
Results: The patient was extubated at 12 h and ICU stay duration was 40 h. The patient was discharged on day 7. There was no difference between femoral artery and brachial artery blood pressure. The multislice BT scan revealed that the anastomoses performed were functional. After 5 months of follow-up the patient was in good condition with normal blood pressure.
Conclusion: During single staged repair of coarctation accompanied by a concomittant cardiac pathology, we advocate this technique since the graft between the arcus aorta-to-descending aorta follows the route of the native aorta. Thus the route of the graft bypassed in this technique is more anatomical compared to that of the other techniques.

CV02 - 5

EMERGENCY ENDOVASCULAR STENT-GRAFT TREATMENT FOR ACUTE THORACIC AORTIC SYNDROMES

Caronno R., Piffaretti G., Tozzi M., Lomazzi C., Rivolta N., Riva F., Castelli P.
Department of Vascular Surgery, University of Insubria, Varese, Italy

Objective: We report the results of our ongoing experience of urgent and emergency stent-graft implantation in acute thoracic aortic syndromes.
Methods: From November 2000 to March 2005, 17 patients were treated for acute thoracic aortic syndromes. Traumatic rupture was diagnosed in 7 patients, complicated acute type B dissection was present in 4 patients, penetrating ulcer in 4, and symptomatic thoracic aortic aneurysm in 2 patients. There were 16 male patients with a mean age of 51±26 years (range 18-83; median 46). Patients were treated in the theatre suite under general anesthesia.
Results: Stent-graft placement was technically successful in all patients. The early postoperative mortality was 11.7%. Neurological events or upper arm ischemia due to overstenting of the left subclavian artery were not observed. Average intensive care unit and hospital stay were 18 and 22 days, respectively. Major complications occurred in 5 patients. Follow-up ranged between 3 and 60 months (mean 25) and included clinical examinations and serial CT-angiography at 1, 4 and 12 months, and every year thereafter. Only one type II endoleak was detected and treated by coil embolization of the left subclavian artery.
Conclusion: Our experience suggests emergency stent-graft repair in patients with acute thoracic aortic syndromes is a less-invasive attractive alternative, showing encouraging early and mid-term results.

CV02 - 6

ENDOVASCULAR TREATMENT OF TYPE B AORTIC DISSECTION: A PROMISING ALTERNATIVE

Rapisarda F., Cassai M., Carone E., Santoro G., Pratesi C., Stefano L.P.
Department of Cardiothoracic Surgery, Azienda Ospedaliera Universitaria Careggi, Florence, Italy; Department of Cardiology, S.Luca - A.O.U. Careggi, Florence, Italy; Department of Vascular Surgery, A.O.U. Careggi, Florence, Italy

Objective: The optimal treatment for complicated type B aortic dissection is still controversial. Considering the high morbidity and mortality related to surgical repair of the descending thoracic aorta, the endovascular approach is a promising alternative, mainly for chronic stages.
Methods: In the last four years 12 patients were referred to our hospital with type B aortic dissection. Ten (83.3%) had chronic dissection and 2 (16.6%) had acute onset; 11 (91.6%) had moderate comorbidities (ASA class = 3) and one (8.3%) a poor clinical health status (ASA class 4). Indications for aortic stent-grafting were pain in 4 patients (33.3%) and the presence of a large false lumen with maximum aortic diameter exceeding 55 mm in 7 cases (58.3%). One patient (8.3%) with acute dissection had severe legs ischemia managed at first with emergency fenestration of the dissecting membrane due to the complex anatomy of the aorta. The failure of this procedure required an emergency axillo-femoral by-pass with fatal complications. The endo-grafting was performed in a cardiac operating theater (CPB available) by a team of cardiothoracic and vascular surgeons, interventional cardiologist and anaesthesiologists.
Results: The stent-graft coverage of the primary entry tear has been achieved in all patients. None underwent conversion to open surgery and one received (8.3%) hybrid procedure (thoracic descending aorta stent grafting and open surgical resection of an abdominal aortic aneurysm). We didn't observe neither neurologic complications nor early or late deaths.
Conclusion: The endovascular approach represents an interesting alternative to traditional treatment of complicated type B dissection considering the lowest morbidity and mortality and the rapidly expanding availability of endovascular technology; however further investigations are necessary to answer all the rising questions.

CV02 - 7

A META-ANALYSIS OF ENDOVASCULAR VERSUS OPEN SURGERY FOR THE ACUTE TREATMENT OF DESCENDING AORTIC PATHOLOGY: DETERMINING BEST PRACTICE

Brightwell E.R., Athanasiou T., Cheshire J.W.N.
Regional Vascular Unit, London, England; Imperial College, London, England

Objective: Despite data supporting endovascular treatment of acute abdominal aortic aneurysms there has not been a meta-analysis of endovascular vs. open surgery for acute descending thoracic aortic pathologies. This study presents the results of a meta-analysis of all available series comparing open and endovascular intervention on emergency thoracic aortic cases.
Methods: A prospective registry of our cases from 2001-present was analysed. These data were then combined with a systematic review of the literature reporting results following intervention on acute pathologies affecting the descending thoracic aorta. Only peer-reviewed papers covering 1994 -Present describing both endovascular and surgical outcomes were included. We assessed: 30-day mortality, paraplegia and major adverse outcome (a composite of mortality and paraplegia). Random and fixed-effect meta-analytical models were used to evaluate the outcomes and represent the results quantitatively and graphically.
Results: One hundred and seventy-one patients (Open = 81, Endovascular = 90) were suitable for inclusion. None were randomized. Paraplegia rates and major adverse outcome were statistically lower in the endovascular group ($P = 0.05$ and $P = 0.07$ respectively). Analysis of all data using a random-effects model suggests no significant difference in 30-day mortality between either intervention ($P = 0.24$), but this becomes highly significant if a fixed-effects model is used ($P = 0.01$). The cause of this discrepancy is statistically significant heterogeneity ($P = 0.05$) between the mortality data reported in the included studies. Results from Morishita et al appear to skew the results of the meta-analysis, since their data on mortality suggests open surgery is preferable to endovascular repair in contrast to the other studies and other reported series. This observation may be caused by selection bias.
Conclusion: At present there is no clear evidence-base to support endovascular treatment of acute thoracic aortic disease in general. Since a randomised trial is unlikely to be performed there is a strong need for further rigourous analysis of comparative data from centres using both techniques.

CV02 - 8

STENT-GRAFT REPAIR OF POST-COARCTATION ANEURYSMS

Gawenda M., Aleksic M., Krueger K., Brunkwall J.
Division of Vascular Surgery, Medical Centre, University of Cologne, Cologne, Germany; Institute of Radiology, Medical Centre, University of Cologne, Cologne, Germany

Objective: Late aneurysm formation has been reported after every type of surgical coarctation repair, with rupture of such aneurysms being responsible for approximately 7% of all deaths. Secondary surgical repair carries a significant mortality and morbidity. According to the positive experience with endovascular therapy of atherosclerotic thoracic aortic aneurysms, it is worthwhile to evaluate the concept of minimally invasive endovascular stent grafting for secondary repair of postsurgical aneurysms.
Methods: prospective clinical data base; data were collected prospectively on consecutive patients who presented with a post-coarctation false aneurysms.
Results: Since 1999, in a cohort of 60 endovascularly treated patients with thoracic aortic pathologies, 3 patients with post-coarctation false aneurysms underwent endoluminal stent-graft placement. All of these procedures were technically successful with no 30-day or 1-year procedurerelated mortality. After a mean follow-up of 27 months (range, 17-42 months), all aneurysm remain excluded without endoleak.
Conclusion: According to the current limited experience of small series and short periods of followup, the endoluminal repair seems to be a promising alternative to redo operations for post-surgical thoracic aneurysms associated with coarctation repair. Long-term follow-up is required to assess the durability of the stent-graft treatment.

16.30-18.00
MAY 12 2006, 2ND CONGRESS DAY

3RD VASCULAR SCIENTIFIC SESSION
DOS SANTOS PRIZE

DSP - 1

THE RESULTS OF SURGICAL TREATMENT OF CHRONIC OCCLUSION OF INTERNAL CAROTID ARTERY

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St-Petersburg medical academy of Postgraduate Education, St-Petersburg, Russian Federation

Objective: The purpose of this study was to examine the efficiency of resection of the internal carotid artery (ICA) with endarterectomy and plastic of the external carotid artery (ECA).
Methods: We have overseen the results of surgical treatment of 49 patients with uni- and bilateral occlusion of the ICA. Resection of the ICA with endarterectomy and plastic of the ECA was performed in all patients. All patients underwent clinical examination, US duplex, X-ray angiography, tomography, angioscan. The quality of life of patients we have analyzed using the questionnaire Short Form 36. In accordance with stage of insufficiency of cerebral circulation the patients was devised: asymptomatic - 1(2.0%) patient, transitional ischemic attacks - 11 (22.5%) patients, chronic insufficiency of cerebral circulation - 7 (14.3%) patients, the outcome of stroke - 30 (61.2%) patients. To all patients we have carried out the resection of the ICA with endarterectomy and plastic of the ECA 51 interventions in total. In 48 (94.1%) cases we have used the auto arterial plastic, in 2 cases (3.9%) - auto vein plastic and in 1 (2.0%) case - plastic with PTFE. In early and late postoperative periods we have done the control examination for 42 (85.7%) patients.
Results: The period of surveilance is between 2 till 91 months. We mentioned the objective improvement of clinic state for 30 (71.4%) patients, there was no dinamic for 9 (21.5%) patients, aggravation of state was for 3 (7.1%) patients. Among the patients with improvement of state there were 2 (6.6%) with chronic insufficiency of cerebral circulation, 20 (66.7%) patients with the outcome of stroke, 8 (26.7%) patients with transitional ischemic attacks. All 3 (7.1%) patients with aggravation of state were from group with the outcome of stroke. There was 1 stroke in the system of ICA which was operated. There was 1 death (in 1 year after intervention) because of stroke in the system of ICA which was operated. The mortality is 2.38% the analyze of quality of life in late postoperative period showed that quality of life imroved about 7.9+0.9% in medium.
Conclusion: The intervention of resection of the ICA with endarterectomy and plastic of ECA for patients with chronic occlusion of the ICA gives Total or partial regress of neurological symptomatic even in group of patients with important neurological insufficiency 1 The improvement of cerebral circulation The improvement of quality of life even in group of patients with important neurological insufficiency.

DSP - 2

PREDICTION OF THE SUCCESS OF PERIPHERAL ARTERIAL RECONSTRUCTION WITH CIRCADIAN MEASUREMENTS OF SKIN BLOOD FLOW BY MEANS OF LASER DOPPLER FLOWMETRY

Przywara I.S., Wronski J., Terlecki P., Feldo M., Zubilewicz T., Kobusiewicz W., Wallner G.
Department of Vascular Surgery and Angiology, University Medical School of Lublin, Lublin, Poland; Department of General Surgery, University Medical School of Lublin, Lublin, Poland

Objective: The aim of the study was to evaluate the usefulness of circadian measurements of skin blood flow in prediction of the success of peripheral arterial reconstruction.
Methods: 20 male patients, with initial diagnosis (based on physical examination) of occlusion of superficial femoral artery were included in the study. Cutaneous perfusion was measured by means of laser Doppler flowmetry on the dorsum of ischaemic foot, in supine position, 6 times during 24 h, at equal intervals of 4 h. Two identical series of circadian measurements were performed: before surgery (prior to ultrasound/angiography) and one day after arterial reconstruction.
Results: Preoperative laser Doppler measurements showed in 14 cases (Group A) statistically significant circadian rhythm of skin blood flow with low perfusion during the daytime and its increase at night. In 6 cases (Group B) no obvious day-night rhythm was observed. Successful restoration of peripheral perfusion in Group A, by implantation of femoro-popliteal venous or prosthetic by-pass led to statistically significant increase of average circadian skin blood flow (31.3%) and increase of the amplitude of day-night rhythm in skin blood flow (28.2%), when compared to preoperative values. In 4 patients from Group B, only revision of popliteal trifurcation was performed due to confirmed intraoperatively occlusions of crural arteries showed by angiography. Remaining 2 patients from Group B underwent implantation of distal femoro-popliteal by-pass but had thrombosed within 7 days from the day of surgery. Postoperative measurements in Group B did not show any improvement of resting perfusion nor the signs of reappearance of circadian rhythm.
Conclusion: Noninvasive, circadian measurement of peripheral skin perfusion by means of laser Doppler flowmetry in patients awaiting vascular reconstruction may be valuable tool in the prediction of the success of blood flow restoration in ischemic legs. The presence of circadian rhythm in skin blood flow prior vascular reconstruction and increase of resting perfusion and amplitude of the daynight rhythm after revascularisation may indicate successful cases. The lack of significant circadian rhythm in peripheral skin perfusion before and after vascular reconstruction may distinguish patients with high risk of failure.

DSP - 3

PROGRESS IN CARDIOVASCULAR ANASTOMOSES TECHNIQUE: IS THE VASCULAR JOIN THE MOST PHYSIOLOGIC TECHNIQUE TO ANASTOMOSE VESSELS?

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Objective: Surgical environment is becoming more and more challenging for the vascular surgeon since minimally invasive approach comes up. Moreover, the vascular surgeon has to deal with vascular reconstructions that are very complex due to the aging of the population and the increasing number of patient's comorbidity. The suture technique for vascular anastomosis construction is becoming inadequate to meet new surgeon's demand. Therefore, surgeons need an alternative way to construct a bypass in order to reduce the technical demand and standardise the quality of the surgical procedure. The sutureless anastomotic device presented fulfils all the above described needs and represents a breakthrough product that will establish the new gold standard for vascular anastomosis.
Methods: Vascular Join allows the construction of end-to-end anastomosis. It consists of two metallic rings fixed to the extremity of the two conduits being joined together. A third polymeric element keeps the two rings together with a snap-on system and guarantee the continuity of the severed conduit. One of the key elements that makes this device totally different from all other sutureless devices, is that there is no foreign material (metal or polymers) inside the vessel. Experimental set up: in 10 adult sheep, under general anaesthesia, both carotid arteries are prepared. After injection of heparin 100 U/kg, carotid arteries are severed and an end-to-end anastomosis performed using the sutureless technique. IVUS and angiogram are used to assess anasomosis quality. Animals are sacrificed after 2 h and hystopathological analysis is carried out.
Results: All anastomeses were successfully completed in less than 60 sec. No bleeding, stenosis or occulsions were detected. IVUS, angiogram and histology showed perfect apposition of vessel's edges.
Conclusion: The Vascular Join is a reliable instrument to perform sutureless end-to-end anastomosis. It makes the construction of vascular anastomosis easier and than ever. Moreover, it can be used with prosthetic material and in endoscopic procedures as well. Animal studies are on going to assess the long term results.

DSP - 4

CAROTID RESTENOSIS AFTER ENDARTERECTOMY: SELECTIVE USE OF OPEN VASCULAR AND ENDOVASCULAR TREATMENT

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Department of Cardiac Thoracic and Vascular Sciences, Division of Vascular Surgery, University of Padua, Padova, Italy

Objective: Consensus has not yet been established on the best treatment of tight carotid restenosis. after carotid endarterectomy (CEA). Different open primary procedures may produce different features of restenotic tissue, fibrous, soft or calcified. This study analyses these differences in the selection of endovascular vs. open vascular reintervention.

Methods: From January 1999 to January 2004, 51 patients underwent vascular or endovascular treatment for a >75% restenosis. Primary surgery was CEA with primary closure (38 pts, 75%) and CEA with patch closure (13 pts, 25%). Indication to open surgery vs. the endovascular approach was based on the type of primary intervention and the morphologic characteristics of the restenotic plaque. All patients undergoing surgical treatment had a soft plaque on duplex scan examination, and in the majority of them (77%) the primary procedure was CEA and patch.
Results: CAS with cerebral protection device was planned on 38 patients. Angioplasty was technically successful in 34 cases (89%). Open surgical re-intervention was primarily carried out in 13 patients, and in 4 secondarily after the failed endovascular attempt. Postoperative major strokes were 2 in the open surgery group and 1 in the endovascular group. There was 1 asymptomatic stent occlusion. At surgery, 80% of the restenosis after primary CEA and patch closure showed a soft, friable material at gross examination. Such friable material was never found in restenosis after primary CEA and direct closure.
Conclusion: Since restenosis is not an homogeneous condition indications to vascular or endovascular treatment should be selected based on the different features of each patient. CAS with cerebral protection devices is an acceptable alternative to surgery in the management of internal carotid artery restenosis following endarterectomy. However restenosis after CEA and patch closure is usually associated with a soft material and CAS could present a very high risk of embolization during the procedure.

DSP - 5
CRYOPRESERVED ARTERIAL ALLOGRAFT RECONSTRUCTION FOR PERIPHERAL GRAFT INFECTION
Alsac J., Paraskevas N., Francis F., Coppin T., Cerceau P., Castier Y., Leseche G.
Service de Chirurgie Vasculaire et Thoracique, Hôpital Beaujon (AP-HP), Clichy, France

Objective: We have prospectively evaluated the safety and the efficacy of cryopreserved arterial allograft reconstruction in the management of major peripheral arterial graft infections.
Methods: During the 9-year study period (April 1996 to March 2005), 21 patients with major peripheral graft infection underwent graft excision and cryopreserved arterial allograft reconstruction. Nine patients (42%) had systemic sepsis, five (23%) had acute ischaemia at the time of the allograft reconstruction and ten patients (47%) had experienced anastomotic rupture. Allograft reconstruction was performed as an emergency procedure in 7 patients (33%).
Results: There were no perioperative deaths or early amputations. Two patients had allograft ruptures in the groin during the early post-operative period. The mean follow-up period was 39 months (range, 6-100 months). There was no persistent or reccurent infection and none of the patients received long-term antibiotic therapy. Reoperation for allograft revision, excision, or replacement was performed in four patients. The 2 years primary allograft patency, secondary allograft patency and limb salvage rates were 66%, 74% and 86% respectively.
Conclusion: Our experience with cryopreserved arterial allograft in the management of major peripheral bypass graft infection suggests that this technique seems to be a very useful option for treating one of the most dreaded vascular complications.

DSP - 6
VASCULAR AND ENDOVASCULAR COMBINED PROCEDURES IN LOWER LIMB ARTERIAL RECONSTRUCTION
Gabrielli R., Gossetti B., Irace L., Gattuso R., Rossi A., Laurito A., Faccenna F., Benedetti-Valentini F.
Chair of Vascular Surgery "La Sapienza" University of Rome, Rome, Italy

Objective: The association of vascular and endovascular procedures, in patients with multifocal obstructive disease of the lower limbs, gives the opportunity to treat in a single step multi-segmental lesions which were previously treated in more demanding open procedures.
Methods: From January '99 to May '05, thirty-five patients, 29 males and 6 females, with chronic occlusive arterial disease of the lower limbs (3rd–4th Fontaine stage) were submitted to combined vascular and endovascular procedures. In 25 patients (71.5%) (Group 1) a femoro-popliteal/pedidial bypass was carried out after PTA/Stenting of the iliac arteries, while in the 10 patients (28.5%) (Group 2) the endovascular procedures were performed following the surgical approach (a femoro-popliteal bypass). The prosthetic material was autologous saphenous vein in 23 patients (65.7%), PTFE EXS in 8 (22.8%) and a biological graft in the remaining 4 (11.5%). In the group 1 after iliac stenting a fem-pop subarticular bypass was carried out in 19 (76%), a fem-pop supragenicular in 4 (16%), a fem-pop + jump on the posterior tibial in 1 (4%) and a superficial femoral-pedal in the last one (4%). In the other group the fem-pop subarticular bypass was followed by a PTA of the tibial vessel in 8/10 cases (80%) and by a tibial stenting in 2 cases (20%). The follow-up was from 3 to 65 months and the patients were submitted to routine controls by means of Duplex scan. MRangiography or a dye angiography were performed in complicated cases.
Results: One patient was lost to follow-up and none died. Two (8%) iliac stents became occluded and the sudden onset of an acute ischemia of the limb required in both cases an aorto-femoral bypass on emergency. The occlusion of the tibial stent in one patient (10%) was no clinical relevant, and the failure of the PTA procedure in other two (20%) with the reocclusion of the tibial arteries was followed by thight amputation; Occlusion of the femoro-popliteal bypass occurred in 6 of 25 patients of group 1(24%) and in 3 of 10 of group 2 (30%). The overall patency rate was 74.3%.
Conclusion: Combination of the vascular and endovascular surgery is effective and durable in terms of patency and complication rate. A revision of the international literature shows no codified protocols on combination so that this choice depends only on the subjective surgeon's experience. In our opinion the good results obtained depends also on the patient's selection and on the arterial disease morphology.

DSP - 7
CEREBRAL EMBOLIZATION DURING CAROTID STENTING VERSUS CAROTID ENDARTERECTOMY
Palombo G., Stella N., Filippi F., Faraglia V.
Department of Vascular Surgery, Sant'Andrea Hospital, University of Rome "La Sapienza", Rome, Italy

Objective: To assess the impact of cerebral embolism during carotid artery stenting (CAS) and carotid endarterectomy (CEA) using post-operative cerebral imaging and intraoperative transcranial Doppler monitoring of the middle cerebral artery.
Methods: From October 2004 to November 2005 we used a bigated transcranial Doppler for the monitoring of 92 consecutive procedures, 61 stentings (Group A) and 31 endarterectomies (Group B). The CAS was performed with a femoral access in 21 patients and with a cervical access in 40 patients. In all transfemoral and in 12 transcervical procedures we used a filter device (Epifilter, Boston Sc.) as cerebral protection. In the other 28 transcervical procedures, we instead used ICA flow reversal to protect the brain. So, CAS patients were divided in 3 subgroups: transfemoral, transcervical with filter and transcervical with flow reversal. We used a TCD equipment which is able to automatically diffenciate microemboli from artifacts and to count them (DWL Multi-Dop. Germany). The total rate of emboli registered and post-operative events were evaluated in each group. A post-operative Diffusion-Weighted MR of the brain was executed in 55 patients of group A and in 27 patients of group B. In the other patients a post-operative CT scan was obtained.
Results: The mean number of microemboli was 234.3 for CAS and 14.3 for CEA ($P<0.01$). Postoperative neurological events in group A were 3 minor strokes (4.9%) and 2 TIAs (3.2%). No complications occurred in group B. In a patient with post-operative TIA the cerebral imaging showed multifocal micro-ischaemic infarctions while in the other symptomatic patients a focal new ischaemic lesion was observed. New asymptomatic ischaemic lesions were found in 9 patients of group A (14.7%) and in 2 patient of group B (6.4%). In one group A patient (transfemoral access) the lesion was localized in the contralateral hemisphere. Moreover, among CAS patients, we noted a significant decrease of the microemboli count in procedures executed with flow reversal.
Conclusion: The CAS procedure, when evaluated with transcranial Doppler monitoring and brain imaging techniques, is associated with a significantly higher rate of cerebral embolization compared with CEA. Moreover, some steps of CAS procedure are performed without cerebral protection (aortic arch and common carotid cannulation, filter stenosis'crossing) Symptomatic and asymptomatic cerebral embolization during CAS should be reduced with careful patient's selection and improvement of brain protection techniques, namely carotid flow-reversal.

DSP - 8

CAROTID ENDARTERECTOMY IN PATIENTS WITH ACUTE NEUROLOGICAL SYMPTOMS: A CASE CONTROL STUDY

Dorigo W., Pulli R., Barbanti E., Azas L., Troisi N., Pratesi G., Alessi Innocenti A., Pratesi C.
Department of Vascular Surgery, University of Florence, Florence, Italy

Objective: Aim of this study was to retrospectively evaluate our experience in urgent CEA in patients with acute neurological symptoms comparing them with results obtained in stable symptomatic patients in a case-control study.
Methods: From January 1996 to December 2003, 2564 consecutive CEAs were performed at our Department. In 55 cases CEA was carried out in patients with acute neurological deficit; in all these patients, clinical presentation were recent (<24 h) or crescendo (defined as two or more episodes in 24 h, with complete recovery after each episode) TIAs (Group 1). Control group was randomly obtained from our historical database and consisted of 225 stable symptomatic patients operated on in the same period (Group 2). Early (30 day) results in the two groups were compared by ?2 and Fisher exact tests; follow-up data were analysed by life-table analysis (Kaplan-Meier test) and results in subgroups were compared by means of log rank test.
Results: Considering mortality and any neurological morbidity, the patients of group 1 showed a cumulative rate of death and neurological complication significantly higher than those in group 2 (5.4% and 0.8%, respectively; $P = 0.005$); however, when analyzing 30-day disabling strokes and deaths, the patients of group 1 had a cumulative complication rate of 1.8%, as in group 2 the corresponding figure was 0.4% (P = n.s.). In patients of group 1 univariate analysis and logistic regression for multivariate analysis for 30-day risk of stroke and death did not show any influence of comorbidities, clinical status, anatomical and surgical features. Estimated cumulative 36 monthssurvival was significantly better in group 2 than in group 1. Considering the absence of ipsilateral stroke at 36 months, there were no differences between the two groups; however, analyzing the estimated absence of any neurological events, both ipsilateral and contralateral, at 36 months, patients of group 1 had an higher risk than those of group 2.
Conclusion: Urgent CEA in patients with recent/crescendo TIA and appropriate carotid artery lesion carries good early and long term results, which however remain slightly poorer than those obtained in symptomatic patients with a stable neurological status.

DSP - 9

INTERACTIVE HOME TELEHEALTH: IS AN AVAILABLE TOOL IN THE PLANNING OF THE CAROTID ENDARTERECTOMY AS ONE DAY SURGERY?

Rousas N., Mambrini S., Robaldo A., Mazzei R., Mugnai D., Palombo D.
Vascular ed Endovascular Surgery Unit of University Hospital S. Martino, Genova, Italy

Objective: New technologies change the role both of medicine and patients. In order to cut the hospitalization days and health costs, but maintaining the highest safety standards, we have experimented a protocol aimed at an early and protected discharge for hospital on the first day after carotid endoarterectomy (CEA). Complications mostly happen during the perioperative period (first 12 h). Late complications happening 48 h after the operation consist in lateral-cervical haematoma, and hypertensive crises. In the first instance the treatment consists in an early drainage of the haematoma to prevent or treat respiratory insufficiency, in the second one in the administration of hypotensive drugs. Aim of study is to prove if CEA can be done at one day surgery.
Methods: From October 2005 we have selected 26 patients, with internal carotid stenosis ≥70%, living in a culturally and organizationally adequate background. All the patients underwent CEA; they were discharged on the first postoperative day according to a system of "Interactive Home Telehealth" (IHT); they were given a bag - to be given back after 48 h of monitoring - containing an electronic artery pressure meter, a UMTS technology videophone, a questionnaire With a personal computers that our ward is endowed linked to the Web, and a satellite video communication program, we monitored the surgical cut, arterial pressure, heart beat and the general conditions of the patient. In order to ensure safety standards for the patient's health, a collaboration agreement has been reached with the emergency service so that an immediate action by the surgeon is possible in case of need during a video-call.
Results: The image quality of the videophone is so good as to allow a correct judgement by the surgeon. From the questionnaire gaved to the patient emerged a sense of insecurity, because of the early discharge. This insecurity decreased after the first video connection, also for a general satisfaction coming from the immediate return to the family environment. There were no medical emergency interventions; 3 cases showed hypertension, which solved after advising the patient to follow an adequate hypotensive therapy.
Conclusion: CEA may be effected, in selected cases, as One Day Surgery procedure. Our initial results suggested that the IHT protocol wich we used is a valuable and safety tool for decreasing the hospitalization period, without limitations in careful watch of local and general conditions.

16.30-18.00
MAY 12, 2ND CONGRESS DAY

4TH VASCULAR SCIENTIFIC SESSION
PERIPHERAL VASCULAR DISEASE I

V04 - 1

ROUTINE DUPLEX SCANNING IN GRAFT SURVEILLANCE AND FACTORS PREDICTING GRAFT FAILURE

Carter A., Murphy M., Serracino-Inglott F., Bodill H., Millar L.M., Turner N., Halka A., Walker G.M.
Department of Vascular Surgery, Manchester Royal Infirmary., Manchester, England

Objective: To investigate the natural history of lower limb bypass grafts and the factors that predict failure.
Methods: A cohort of 297 grafts, of which 74% were males and the median age was 68 (range = 24–90). Colour duplex imaging was routinely employed at 6 time points relative to surgery - 0.1.3.6.12 and 18 months postoperatively. Those with significant (>75%) stenoses and therefore risk of graft failure were offered intervention as required. Data for co-morbidity, medications and operative details were gathered prospectively and analysed with regard to conduit material, inflow, stenoses and outflow.
Results: Significant stenoses developed in almost 50% of the grafts studied. During the first six months, the commonest site of stenosis was at the proximal anastomosis or within the graft itself, particularly in venous conduits. Distal anastomotic lesions were more prevalent from six months onwards particularly in prosthetic grafts. Interestingly, smoking was not found to be a strong predictor of poor outcome. Fifty-six (18.9%) developed a significant lesion and underwent a further procedure to maintain secondary patency. Fourty seven (15.8%) of the grafts occluded. The majority of which occurred after six months.
Conclusion: This is the first study to delineate the natural history of lower limb bypass grafts and to highlight grafts at risk of failure. The location and onset of significant lesions varied between conduit material and site of distal anastomosis.

V04 - 2

CAN MULTI-DETECTOR COMPUTED TOMOGRAPHIC ANGIOGRAPHY REPLACE CONVENTIONAL ANGIOGRAPHY PRIOR TO LOWER EXTREMITY ARTERIAL RECONSTRUCTION?

Elsharawy A.M., Elsharawy A.M.
Department of Surgery* and Department of Radiology** King Faisel University, Al-Khobar, Saudi Arabia

Objective: Computed tomographic (CT) angiography has become a valuable diagnostic technique prior to lower extremity arterial reconstruction. The purpose of this study is to compare its accuracy to conventional angiography for planning lower limb revascularization procedures.
Methods: A prospective study was performed on all patients who underwent lower extremity arterial reconstruction procedures and had both CT angiography and conventional angiography between October 2003 and November 2005. We compared both modalities of angiography to intra-operative findings and whether a change in operative procedure would have resulted. The time for performance of both techniques and their complications were also reported.
Results: Sixty-nine patients were included in this study. Discrepancies between intra-operative findings and CT angiography were noted in 4 (6%) cases while there was none with conventional angiography (P = 0.127). Disagreements between intra-operative findings and CT angiography have lead to a different procedure in 3 (4.5%) cases and all were infra-inguinal. The time for performance of CT angiography was significantly shorter than that for conventional angiography (2.5±0.3 min vs. 37.5±5.2, P =0.006).
Conclusion: For arterial reconstruction procedures CT angiography provides a low invasive and accurate imaging with short examination time. It can be used as a primary imaging modality in evaluation of lower limb ischemia.

V04 - 3

PREOPERATIVE ANGIOGRAPHIC SCORE IN PREDICTION OF THE RESULTS OF THE DISTAL BYPASSES IN THE CRITICAL LIMB ISCHEMIA PATIENTS

Pokrovsky V.A., Dan N.V., Chupin V.A., Zamsky S.K., Kharazov F.A.
Vishnevsky Institute of Surgery, Moscow, Russian Federation

Objective: To predict the distal bypass results in critical limb ischemia patients with use of the preoperative angiographic outflow score.
Methods: One hundred and five patients with cruro-pedal arterial lesion and critical limb ischemia were treated. Most of them were males – 95 (10.5%), 66 (62.9%) had atherosclerosis, 37 (35.2%) had thrombangiitis obliterans, 2 (1.9%) had distal embolization. Mean age of the patients with atherosclerosis was 66,0+8.3, with thrombangiitis obliterans - 37,0+7.5 years. 31 (29.5%) had only ischemic rest pain, 74 (70.5%) had ischemic ulcers or gangrene of toes or foot. Our estimation of preoperative angiographic characteristics was based on the scheme of SVS/ISVS Ad Hoc Committee (1997). We divided patients into two groups: patients with “good” distal run-off score (less then 7 points) and patients with “bad” run-off score (7 points and more). The main indication to vascular procedure was patient artery at least 12 cm long. We have performed following arterial reconstructions: femoral-tibial in 76 (72.4%), femoral-pedal in 5 (4.8%), poplitealpedal in 12 (11.4%), tibial-pedal in 3 (2.8%) and popliteal-tibial in 9 (8.6%) cases. We used PTFE prosthesis in 13 (12.4%) cases, autologous vein in 76 (72.3%) and combined graft (PTFE+vein) in 16 (15.3%) cases.
Results: The main part of graft thrombosis occured in the group with “bad” run-off score (P<0.05). Graft patency in the group with “good” run-off was 92% vs. 52% in group with “bad” run-off. Five years primary graft patency and limb salvage in group with satisfactory run-off score were 40% and 75%, accordingly, vs. 16% and 49% in group with “bad” run-off.
Conclusion: The SVS/ISVS Ad Hoc Committee preoperative angiographic outflow score is a good instrument which can help to predict both early and long-term results of vascular bypass procedures.

V04 - 4

LIMB-SALVAGE AFTER DISTAL VEIN BYPASS AFTER COMBINED WITH FREE TISSUE TRANSFER IN SEVERE PERIPHERAL VASCULAR DISEASE

Stehr A., Prantl L., Steinbauer M.G.M., Pfister K., Kasprzak M P.

Objective: Chronic ulceration by arteriosclerotic disease or diabetes mellitus is still a serious problem even after successful vascular reconstruction. Standard plastic surgical methods such as pedicle skin flaps are often insufficient. Free flap transfer is an excellent method to achieve wound coverage, provided that appropriate recipient vessels are. The first experiences with the combination of a distal arterial reconstruction with a free flap transfer are reported.
Methods: Ten patients with severe soft tissue defects due to advanced peripheral vascular disease, diabetes mellitus and chronic renal insufficiency are reported. In all cases arteriography was performed to plan revascularization and to identify appropriate recipient vessels for free tissue transfer. In all patients a distal arterial revascularization of the leg with a vein bypass grafting was necessary and the bypass was the only appropriate recipient vessel for free flap. Free tissue transfer were taken from the parascapular flap in seven patients, from the lateral upper arm flap in two and from the latissimus dorsi in one patient. The distal outflow artery and graft flow was detected by a color-coded duplex scan. Flap viability was proven by a new oxygen uptake measurements (Luminescent lifetime imaging)) during the first 7 days postoperatively.
Results: All 10 procedures were successful initially, without operative mortality, but one failed within 1 week because of severe acute vasculitis attack and required below-knee amputation. There were no anastomotic flap failures. Wound healing disturbances were observed in 3 patients. The average hospitalization was 40 days. Eight patients had a patent graft and a viable flap at the time of follow-up of 12 months. One patient died after 4 months of unrelated illness; at the time of death he had functioning flap.
Conclusion: Combined bypass and microvascular free-tissue transfer in patients with advanced ischemic ulcers is a safe procedure and can provide in limb salvage in severe cases without alternative treatment modalities. The long-term outcomes are very promising. Highly motivated patients and an optimal postoperative treatment with physiotherapy and orthopaedic shoe support is important. Free-tissue transfer alone may provide not only a healed wound, but also increase distal outflow by reducing peripheral vascular resistance and indirect revascularization of the extremity.

V04 - 5

PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY FOR CRITICAL STENOSES FOLLOWING INFRA-POPLITEAL BYPASS: IS IT WORTHWHILE?

McKeown S.A., Butterfield S.J., Ashleigh J.R., Welch M.
Department of Vascular Surgery, South Manchester University Hospital, Wythenshawe, England; Department of Radiology, South Manchester University Hospital, Wythenshawe, England

Objective: Graft-threatening stenosis following infra-popliteal bypass occurs in up to one-third of all cases. With improved endovascular techniques, percutaneous transluminal angioplasty (PTA) is used more frequently. We present our experience of the durability of this procedure.
Methods: Patients were identified from a database containing details of all infra-popliteal vein graft bypasses performed by one Consultant in a 5 year period. Patients requiring re-intervention for symptomatic or duplex surveillance detected stenosis were included. Patient demographics, risk factors for occlusive disease, operative details, duplex findings and subsequent re-interventions were analyzed.
Results: Eighty-five operations were performed; 3 patients died, 13 grafts occluded and 4 were lost to follow-up at 4 weeks: these were excluded from further analysis. Of the remaining 65 grafts, 21 (32.3%) required further intervention: 19 had PTA as the primary re-intervention at a mean duration from surgery of 253 days (median = 192, range = 59–746). Eight of these required secondary reintervention: 5 being to the same site as the primary PTA after a mean duration of 123 days (median = 87, range = 59-230) and 3 to new stenoses at a different anatomical site. Open patch angioplasty was performed as the primary re-intervention for 2 patients at 63 and 119 days from surgery. Both had PTA as secondary re-intervention: 1 to the same site after 257 days and 1 for an inflow stenosis.
Conclusion: Graft-threatening stenosis occurs frequently. PTA appears to be a useful tool in the treatment of these lesions, although repeat procedures may be necessary.

V04 - 6
REMOTE ENDARTERECTOMY OF ILIAC ARTERIES WITH THE RING STRIP CUTTER
Gusinskiy V.A., Shlomin V.V., Sedov M.V., Yurtaev A.E., Kasyanov V.I., Didenko P.J., Sharipov M.E., Shatravka V.A.
Department of Vascular Surgery, City Hospital #2, Saint-Petersburg, Russian Federation; Saint-Petersburg Pavlovs. State Medical University, Saint-Petersburg, Russian Federation

Objective: Recently choosing the type of aortic reconstruction the majority of surgeons prefer to carry out shunting interventions. Deobliteration methods are not so popular. The purpose of our study is the estimation of advantages and disadvantages of remote endarterectomy of iliac arteries with the Ring Strip Cutter device.
Methods: From 1997 to 1999 131 consecutive Ring Strip Cutter procedures (without prosthetic endolining) were performed (34 bilateral and 97 unilateral). In comparison group 327 shunting operations using the basic classes of vascular prostheses were included. Enrollment of patients was equally over the years. All patients suffered from long segmental occlusion or multiple stenosis of aortoileofemoral segment. Pokrovskii classification was used to asses the stage of ischemia. Follow-up consists of clinical evaluation, Doppler, duplex scanning, and angiography on indication. Patency was assessed by clinical examination and duplex monitoring. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.
Results: At 70 (54.5%) cases remote endarterectomy was performed not only from an external iliac artery, but also from all aortoileofemoral segment. In 107 (81.7%) cases we managed to execute an intervention only from femoral access, without an additional approach to retroperitoneal space, that considerably reduced it duration and operational trauma. We also had a zero operative morbidity rate for remote endarterectomy without dependence from age of the patient. Primary patency was 70–73% after five years in group of patients after synthetic shunting and authentically did not depend on a type of prosthesis. On the other hand, the five year primary patency rates after remote endarterectomy of iliac arteries were 90.8% (P<0.01). In no one of our cases there were infectious complications or aneurysmal arteriectasias after remote endarterectomy.
Conclusion: Remote endarterectomy with the Ring Strip Cutter is an effective, minimal invasive procedure. The advantages of remote endarterectomy aortoileofemoral endarterectomy vs. aortofemoral shunting are: the best, in comparison with synthetic shunting, results of the long-term patency, resistance to becoming infected, speed of an intervention, minimal invasive procedure. It also leaves all other options for conventional bypass available. The basic contraindications for performing this intervention are a calcification with a lesion of all layers of a wall of an artery, iliac arteries hypoplasia, their pathological tortuosity, a high occlusion of aorta. In these cases we are recommending to perform shunting operations.

V04 - 7
POPLITEAL ARTERY ANEURYSMS. OUR EXPERIENCE
Tsolaki E., Sileno S., Teutonico P., Coen M., Agnati M., Mascoli F.
Unit of Vascular and Endovascular Surgery, S.Anna University Hospital, Ferrara, Italy

Objective: Retrospective evaluation of all patients with popliteal artery aneurysms treated in our institute.
Methods: Between 1996 and 2005, 62 popliteal artery aneurysms in 55 patients were repaired. There were 51 males and 4 females with an average age of 74 years. Twenty two patients presented bilateral lesions and 15 also had an abdominal aortic aneurysm. Aneurysm diameters varied between 16 and 60 millimetres. Risk factors were smoking, hypertension, dyslipidemia and diabetes. Symptoms were present in 47 patients, while in 15 cases aneurysms were detected accidentally. Preoperative evaluation included duplex scanning and arteriography. Duplex ultrasound surveillance was performed after one, three, and six months post surgery, and yearly thereafter.
Results: All patients underwent surgical treatment, 39 in election and 22 in emergency. Repair was performed with femoropopliteal bypass (19 with vein graft, 15 with ePTFE graft, 1 composite), femoroperoneal bypass (2 with vein graft, 1 with ePTFE graft, 1 composite), femoro tibial bypass (3 with vein graft, 1 composite), vein interposition in 8 cases, interposition of eterologous graft in 6 cases. One patient underwent aneurysmectomy and femoropopliteal tromboendoarteriectomy. In 2 cases exploration and amputation above the knee were performed because of the severe chronic peripheral ischemia and the patient's critical conditions. When necessary embolectomy and/or thrombolysis were performed. Medial approach was used in 52 cases, posterior approach in 8 cases. Primary patency was achieved in 14 patients treated in emergency and in 33 patients who received elective treatment. Secondary procedures included embolectomy, thrombolysis, endovascular procedures, revision of the graft anastomoses and amputation.
Conclusion: The management of popliteal artery aneurysms is controversial. Our studies show that asymptomatic patients, and those who received elective treatment for popliteal artery aneurysms, experienced better outcomes. We recommend treatment even for aneurysms of small diameters, considering the possibility of expansion, thrombosis, distal embolization and rupture.

V04 - 8
ADJUNCTIVE ARTERO-VENOUS FISTULA IN FEMORO-DISTAL RECONSTUCTION: 15 YEARS EXPERIENCE
Ganassin L., Turini L., Galeazzi E., Corato M., Doro S., Toffon A., Masotti D.

Objective: To improve patency of by-passes in patients with poor run-off and no vein available for a distal reconstruction, adjunctive artero-venous fistula has been performed in peripheral reconstruction, in our unit since 1990.
Methods: In a total number of 1024 peripheral by-passes and late thrombectomies over a period of 15 years, we carried out 490 distal artero-venous fistulas. In 394 patients we performed a composite by-pass in human umbilical vein femoro-infrapopliteal with distal artero-venous fistula. Patient characteristics, peri-operative and follow-up of these patients were documented in a database and retrospectively analyzed with medstat survival analysis. Mean age of the patients was 72.3 years; 41% were diabetics, all patients were Fontaine III and IV.
Results: In this group of patients the limb salvage at five years was 58% with cumulative patency of 56% and an incidence of redo of 24%.
Conclusion: Distal artero-venous fistula together with composite by-pass, for critical limb ischemia or associated with thrombectomy in acute ischemia offers a further possibility for limb salvage.

V04 - 9
ANGIOPLASTY OF THE DISTAL ANASTOMOSIS AND RUNOFF ARTERIES OF OCCLUDED INFRAINGUINAL BYPASS
Wolfgang Hepp, Franzeska Sigala/Haan

Background: We investigated the clinical results of transluminal angioplasty performed through infrainguinal bypass grafts for stenotic or occlusive lesions at the distal anastomosis and /or in the runoff arteries in high risk patients and the influence of different parameters on limb salvage, primary and secondary patency rates.
Patients and Methods: Between January 2001 and March 2005 we performed 49 transluminal angioplasties on stenotic or occlusive lesions at the distal

anastomosis and/or in the runoff arteries in 49 (16 female, 23 male, mean age 71.1 years) patients with occluded infrainguinal bypass.20 angioplasties occurred in the runoff arteries, 5 at the distal anstomosis and 24 at both locations at a median of 11.3 months (range 2-85 months) after infrainguinal bypass grafting. Twenty procedures were located on popliteal artery above the knee, 21 below the knee and 8 on crural arteries.
Results: Kaplan–Meier analysis showed a cumulative limb salvage of 87.6% and 76.4% after 6 months and two years, respectively. Patients with gangrenous lesions had a 5 times higher risk of amputation (Cox-regression model). Primary and secondary patency rates were at 6 months 85.1% and 91.1% respectively and were at one year 73.3% and 78.8%, respectively. Patients with end stage renal disease were in 4 times hazard to primary occlusion and patients with gagrenous lesions 5 times to secondary occlusion (Cox-regression model).
Conclusion: Even the long-term results of angioplasty on stenotic or occluded lesions at the distal anastomosis and/or in the runoff arteries are inferior to the results of surgical revisions reported in literature, however in high risk patients with absence af a vein may be the first line alternative intervention for limb salvage.

11.30-13.00
MAY 13, 2006 3RD CONGRESS DAY

5TH CARDIAC SCIENTIFIC SESSION
TRANSPLANT – HEART FAILURE I

C05 - 1

MECHANICAL CIRCULATORY SUPPORT WITH CENTRIFUGAL PUMP AS BRIDGE TO HEART TRANSLANTATION

Arpesella G., Mikus E., Pilato E., Mikus P., Dell'Amore A., Loforte A., Caramelli F., Grigioni F.
Department of Cardiac Surgery, Bologna, Italy, Policlinico S. Orsola-Malpighi, Policlinico S. Orsola-Malpighi, Cardiac Surgery Anesthesiology Unit, Bologna, Italy

Objective: Mechanical circulatory support as recovery and as a bridge is an essential component of transplantation programs for patients with severe end-stage cardiac failure. We report our experience with centrifugal pump device, heparin-bonded circuits and membrane oxigenator for temporary mechanical support.
Methods: In our istitution from 2001, twenty-nine transplantable patients received circulatory support with centrifugal pump as recovery in 17 cases and as bridge to heart transplantation (HTx) in 12 cases. The mean age was 44.5 years (5-65 years). Twenty-four patients received a biventricular device, 4 patients received a right ventricle device and 1 patient a left ventricular device. In case of left ventricle failure, we use a left atrium to ascending aorta assistance. In case of right ventricle failure, we use a right to left atrium originally assistance with membrane oxigenator. When the cardiogenic shock is due to biventricular failure, we perform a biventricular support with membrane oxigenator. We use two cannula system, placing the first one in the right atrium, and the second one in the left atrium, to obtain a good venting of the left ventricle. The inflow cannula is placed in the ascending aorta or in the femoral artery. The procedures are associated with intra-aortic baloon pump. All theses approaches have to be preferred over the traditional ones as supported by a mathematic analysis of hemodynamics performance.
Results: Mean duration of assistance as recovery was 8.9 days (1-22 days). Six patients (35.2%) died for multiorgans failure. Mean duration of assistance as bridge was 19 days (1–112 days). Eight patients underwent HTx and 1 combined heart and liver transplantation. Three patients (25%) died in waiting list. Four patients (13.7%) required rethoracotomy for bleeding. No thromboembolic events occurred in both groups.
Conclusion: Ventricular assistance with centrifugal pump proved effective in case of recovery as well as in bridging patients with end-stage heart failure to HTx. This approach allows us a quick extubation and feeding of the patient, as well as a restrict mobilization with stable hemodynamics features.

C05 - 2

TAH IS BETTER THAN BIVAD IN PATIENTS WITH CARDIOGENIC SHOCK PLACED ON ECMO

Morshuis M., Schenk S., Arusoglu L., Tenderich G., El-Banayosy A., Körfer R.
Heart Center NRW, Bad Oeynhausen, Germany

Objective: Intractable cardiogenic shock requires extracorporal membrane oxygenation (ECMO), but only few survive biventricular failure. We tested if biventricular assist device (BiVAD) vs. total artificial heart (TAH) improves survival.
Methods: Fourty three patients were placed on ECMO and then switched to Thoratec BiVAD (n = 17) or CardioWest TAH (n = 26). Left and right flow index (l/min/m^2), central venous pressure (CVP; mmHg), parameters reflecting renal and hepatic function, and outcome were evaluated.
Results: Mean duration of TAH support was 240 days (1-484), longer than BiVAD (33; 0-133). Left flow index was adequate in TAH and BiVAD patients by postoperative day 21 (3.20±0.39 and 3.10±-0.76). CVP did not differ between both systems (12.4±5.1 vs. 15.4±4.6). TAH left flow index and right flow index were balanced, but BiVAD right flow index was smaller due to residual right heart function. Pre-implant bilirubin was pathologically elevated in both groups. However, whereas bilirubin levels normalized in TAH patients by postoperative day 21, it further increased in BiVAD patients indicating liver failure (3.32.0 vs. 19.74.5 mg/dl, P<0.05). Pre-implant renal failure resolved in 9 of 17 TAH patients, but only in 2 of 8 BiVAD patients. Among 17 BiVAD patients, 2 survived to transplant, and 2 patients were switched to CardioWest TAH due to cardiac thrombus formation (BiVAD median survival time 35 days). In contrast, 11 TAH pts were transplanted (TAH median survival time >150 days; TAH vs. BiVAD, P<0.05). Four CardioWest TAH patients were discharged on custom-made, portable consoles with adequat quality of life. Leading causes of death in both groups were multiorgan failure and stroke.
Conclusion: Organ function recovered in TAH patients by strong, balanced flow. Thus, switching to TAH salvaged 1 of 2 patients on ECMO who would otherwise have died. The discrepancy between adequacy of support and poor outcome in BiVAD pts prompted initiation of a randomized trial comparing both systems.

C05 - 3

TRANSVENTRICULAR MITRAL VALVE REPAIR DURING LEFT VENTRICLE RECONSTRUCTION FOR ISCHEMIC CARDIOMYOPATHY

Mitrev K.Z., Anguseva N.T., Belostotsky E.V., Hristov V.N.
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Objective: Mitral regurgitation (MR) conveys adverse prognosis in ischemic heart disease. It can be treated with a restrictive mitral annuloplasty, with coronary revascularization. In this study, the extent of transventricular access for mitral valve anuloplasty is assessed.
Methods: From December 2001 to May 2005, 56 patients were treated in our center. There were 38 females and 18 males. Severity of MR was graded semi-quantitavely using color flow Doppler. LV dimension were calculated using two-dimensional echocardiography in standard views, LV volumes and ejection fraction (EF) were calculated using Simpson method. Fourty eight patients (86%) had moderate to severe, grade 3 MR, 8 patients (14%) had severe grade 4 MR. Mean EF was 22±4.2. Indication for surgery was heart failure and only in few cases angina was indication for surgery. All patients had New York Heart Association (NYHA) functional class III or IV. 45 patients (80%) had previous anterior myocardial infarction (MI), 11(20%) had anterior and posterior MI. Following revascularization, LV ventriculotomy is performed, and mitral valve is approached transventriculary. Double armed 2-0 braided ethibond suture is used for annular restoration encircling the posterior annulus. Additionally edge-to-edge repair using the Alfieri technique was performed. LV reconstruction was performed using modified Dor method.
Results: All patients received LITA to LAD. Average distal graft per patients was 2.8. There was significant reduction on LV end systolic from 340±55.5 to 150±38.2 and LV end diastolic volumes from 390±68.1 to 245±45.2. EF% increased from 20±2.3 to 33±5.4. Mild MR was documented in 23 (41%) patients, 29 (51%) patients had no MR at discharge. Early mortality was 7% (4 patients). Mean follow up was 18±9.8 months. NYHA functional class improved from 3.7±0.4 to 1.4±0.6.
Conclusion: The excellent results from our combined surgical approach were confirmed with immediately with intraoperative TEE and early haemodynamic improvement, and confirmed on the follow up TTE and NYHA functional class improvement.

C05 - 4

MITRAL VALVE REPAIR IN PATIENTS WITH CARDIOMYOPATHY

Salaymeh L., Ovcina I., Schweiger S., Anelli Monti M., Rigler B.
Medical University of Graz, Department of cardiac surgery, Graz, Austria

Objective: Mitral regurgitation (MR) is a frequent complication of end-stage-heart failure. These patients were either managed medically or with mitral valve replacement, both associated with poor outcome. Mitral valve repair with an undersized annuloplasty may improve survival and reduce the need for allografts.
Methods: Forty one patients with an ejection fraction (EF) <35%, end-stage heart failure and mitral regurgitation >2 underwent mitral valve annuloplasty using the carpentier physio ring.
Results: Thirty day mortality was 12% (n = 5). Seven late mortalities were observed. The use of IABP was necessary in seven patients. The 1, 2 and 5 year actuarial survival was 87%, 84% and 57% respectively. The NYHA class was improved pre-operatively from 3.5 to 1.98 post-operatively. EF also improved from pre-operatively between 15–35% (mean 27%) to 20-56% (mean 38.8%) postoperatively. In the post operative echocardiography there was neither a mitral valve stenosis nor SAM. One patient had a heart transplantation 2 years after the operation, and another required a pacemaker on the fifth post-operative day.
Conclusion: Mitral valve repair is a safe and effective operative intervention that corrects MR and offers a new strategy for patients with MR and end-stage-cardiomyopathy.

C05 - 5

THE ROLE OF ANTI-THROMBIN III IN POST-TRANSPLANT GRAFT ARTERIOSCLEROSIS

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Objective: Heart transplantation still remains the established therapy for end-stage heart failure. The exact mechanism responsible for the pathogenesis of chronic rejection is still incompletely known. Repetitive immune-mediated endothelial injury and immune response by cytokines, lymphokines, complement activation, and growth factors produce prothrombotic changes, which is lead to platelet aggregation and intimal thickening and eventually to obliterative arterial disease. In this study, the value of Antithrombin III in the prevention of coronary artery disease after heterotopic heart transplantation was investigated.
Methods: New Zealand white rats were divided into 4 groups and cervical heterotopic heart transplantation were performed in each group. Group 1 was taken as the control group and received no medication. Group 2 received Cyclosporine-A (Cyc-A) 2 mg/kg/day and Group 3 received Antithrombin III (AT-III) 50 U/kg. Group 4 received Cyc-A 2 mg/kg and AT III 50 U/kg. In all groups, blood samples were analyzed for AT III levels. Samples were taken at 3rd, 7th, 10th, 15th and following every 5 days postoperatively. The interval was extended to 1 in 10 days after the 90th postoperative day. When a lack of contractility cardiac allografts were removed histopathologically examined. Rejection score and the degree of luminal narrowing was classified into 4 groups; grade 1: 0–25%, grade 2: 26-50%, grade 3: 51–75%, and grade 4: 76–100%. All groups were analyzed using Mann-Whitney U-Wilcoxon Rank Sum W, test to compare AT III levels and cardiac allograft survival rates.
Results: The differences of survival rates between Group 1–2, Group 1–4, Group 2–3 and Group 3–4 were statistically significant. Routine analysis of AT III levels showed an increase on the 3rd postoperative day in all groups. After the 7th postoperative day AT III levels returned to preoperative values in Groups 1 and 3. Luminal narrowing ratio was 0.72 ? 0.06 (grade 3-4) in Group 1; 0.70 ? 0.06 (grade 3-4) in Group 2; 0.45 ? 0.13 (grade 2-3) in Group 3 and 0.35 ? 0.08 (grade 1-2) in Group 4. The differences of luminal narrowing rates between Group 1-3, Group 1-4, Group 2-3 and Group 24 were statistically significant whereas the differences between Group 1-2 and 3-4 are nonsignificant.
Conclusion: We can conclude that rejection is a complex pathophysiologic phenomenon that starts as immune reaction and leads to secondary endothelial injury which causes coagulation abnormality and thus thrombosis. AT III, with its inhibitory effects to mitogenic and thrombin's coagulant activities; might play an important role in the treatment/prevention of graft rejection.

C05 - 6

CARDIOPROTECTIVE EFFECT OF THYMOGLOBULINE ADMINISTERED EARLY AFTER HEART TRANSPLANTATION (OHT)

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Objective: The aim of the study was to assess the effect of early Thymoglobuline administration on cardiomyocytes nuclear status in OHT recipients.
Methods: Myocardial specimens from 10 control cases and endomyocardial biopsies (EMBs) from 31 OHT recipients were under investigation. OHT pts. were divided into: ATG group - pts. receiving Thymoglobuline electively (1st dose no later than 8 h after surgery), Standard group - pts. treated without Thymoglobuline, and ATG+Standard group - pts. in whom Thymoglobuline was administered upon drop in renal function (1st dose no earlier than 24 h after surgery). Only EMBs obtained electively 1 and 4 weeks after OHT without signs of aggressive rejection (ISHLT grade 0 or 1A) were evaluated. The karyometrical studies were performed using Quantimet image analysis system. Overall, 1750 cardiomyocytic nuclei were analyzed. Following parameters were quantified: nuclear area, length, breadth, perimeter, chromatin median grey level, and fullness factor.
Results: All OHT groups showed significantly higher values than Control group. During the first 4 weeks after OHT, there was a dramatic decrease of cardiocytic nuclear geometric parameters in Standard group, whereas in both ATG groups the nuclear area diminished nonsignificantly. Mean grey level, the indicator of chromatin despiralization/activation showed stabilization only in ATG group, whereas in Standard group nonsignificant diminution was seen, and in ATG+Standard group diminution was significantly higher than in ATG group. Discriminant analysis revealed the closest Mahalanobis distance between Control and ATG groups.
Conclusion: Signs of cardiocytic nuclear hypertrophy observed in transplanted heart 1 week after OHT are significantly less intensive in pts. receiving Thymoglobuline within 8h after surgery. Later Thymoglobuline administration produces prominent but incomplete nuclear diminution of the nuclei with the tendency to pyknosis, within 4 weeks after OHT.

C05 - 7

ASSOCIATION OF BIOARTIFICIAL MYOCARDIUM AND CELLULAR CARDIOMYOPLASTY FOR MYOCARDIAL SUPPORT AND REGENERATION

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Objective: The objective of cellular cardiomyoplasty is to regenerate the myocardium by the implantation of living cells. However, in ischemic heart disease the extracellular matrix is often disrupted or destroyed. Therefore it could be important to associate a procedure aiming at regenerating both myocardial cells and the extracellular matrix. The purpose of this study was to evaluate the potential of a biodegradable 3D matrix seeded with cells and grafted onto the infarcted ventricle.
Methods: In 24 adult mice (CB57/BL6, age 8-10 weeks, weight 22±3g) a myocardial infarction was created by LAD ligation. Infarct scars were treated with human bone marrow mononuclear cells (BMC), 10% were CD34. Animals were randomized in 3 groups: Group 1, injection of 5 million BMC. Group 2, injection of 5 million BMC and fixation on the epicardium of type I collagen matrix (size 4x3x1.5 mm) seeded with 5 million BMC. Group 3, injection of 15 µl cell culture medium (control). Immunosupression was performed during 10 days with FK506 (0.1 mg/kg/day, SC). Echocardiography (Sequoia 512, 15 MHz probe, Acuson) was performed on postoperative days 7 and 45, followed by heart pathological studies.
Results: Operative mortality was 12.5% (3 mice). The association of the matrix with intramyocardial cell implants seems to be the most efficient approach to reduce postischemic ventricular dilation and remodeling. EF was improved in both cell treated groups. Histology showed fragments of the cellularized collagen matrix thickening and protecting the infarct scars. Segments of the 3D matrix consistently aligned along the LV wall, cells assembled within the collagen fibers in large population.
Conclusion: In infarcted mouse hearts intramyocardial BMC injections associated with a cell seeded matrix prevents myocardial wall thinning and limits postischemic remodeling. BMC implantation improves ejection fraction. This tissue engineered approach seems to improve the efficiency of cellular cardiomyoplasty becoming histologically like a "bioartificial myocardium".

C05 - 8

THORACOSCOPIC INTRAMYOCARDIAL AUTOLOGOUS ANGIOGENIC PROGENITOR CELL TRANSPLANTATION

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Objective: Recent advance in stem cell therapy and minimally invasive technology have potential benefit to the patients with intractable heart failure. The objective of this study is to assess the safety, efficacy and short term results of direct injection of Angiogenic Progenitor cells (APCs) via thoracoscopic approach.
Methods: Twenty six patients underwent thoracoscopic APCs injection. The mean age was 57.6±12.4 years (29-76 years). Twenty four (92.3%) were male. Eight had dilated cardiomyopathy (DCM) and eighteen had ischemic cardiomyopathy (ICM). In ICM group, six patients had previous percutaneous coronary intervention, eight had previous CABG. The mean preoperative ejection fractions were 34.2±17.7% in the ICM and 27.0±9.8% in the DCM groups. Twenty one patients (80.8%) were in NYHA Class III & IV. The mean preoperative pro BNP were 3225.8 and 2261.4 pg/ml in the ICM and DCM groups. The cells were derived from the autologous blood,

separated mainly CD34+ cells and expanded with Vescell technology. The number of cells prior to injection was 27.2±21.4 x 106 cells (viability was 92.6±4.3%). In the ICM group, twelve had only cell injection and six had cell injection plus Off-pump coronary artery bypass grafting. The cells were injected into the nonviable myocardium assessed by cardiac MRI (CMR). In the DCM group, all eight had cells injection in entire area of the left ventricle. All patients had preoperative characteristics, intraoperative variables and postoperative results recorded including major advance cardiac events (MACE). Six min walk test and CMR to be repeated every 2 months up to one year.

Results: There was no MACE. Four patients had elevated cardiac enzymes, postoperatively. There was one death on the third day after redo CABG and cell injection, most likely from pulmonary emboli. The ejection fraction improved 10% and 14.9% in the DCM and ICM group, respectively. The infarction size was also decreased by CMR in the ICM group. Six-minute walk test and NYHA functional class were also improved at 2 months in both groups.
Conclusion: Thoracoscopic intramyocardial autologous APCs transplantation is feasible and safe in all DCM and in both first time and redo ICM patients. The early results are good and the long term results and phase two trial are in progress.

11.30-13.00
MAY 13, 2006 3RD CONGRESS DAY

6TH CARDIAC SCIENTIFIC SESSION
ARRHYTHMIA

C06 - 1

INTRAOPERATIVE RADIOFREQUENCY ABLATION WITH UNIPOLAR AND BIPOLAR DEVICE DURING MITRAL VALVE SURGERY. WHICH IS THE BEST CHOICE?

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Objective: Left atrium radiofrequency ablation (RF) during mitral valve surgery (MVS) has been established as a safe and effective method for the treatment of atrial fibrillation (AF). We investigated safety and efficacy of two different RF devices: unipolar irrigated vs. bipolar irrigated device.
Methods: We studied forty patients with paroxymal (30%) or permanent (70%) AF requiring MVS and randomly assigned to be treated with unipolar (*n* = 20, group U) or bipolar (*n* = 20, group B) device. There where no differences between groups in terms of AF duration, left atrium diameter and type of AF. The same pattern of lesions (left atrium modified maze) could be obtained with both devices. Pulmonary vein isolation was tested intraoperatively and in fourth postoperative day by intraoperatively placed epicardial electrodes.
Results: No major procedure related complications were observed in both groups. Two patients (one for each group) required permanent pacemaker implantation due to AV disturbance. No differences were found between and within groups concerning intraoperative and postoperative electrophysiological studies. There were no differences between groups in success rates of pulmonary veins isolation (18/20 in group U vs. 19/20 in group B) or stable sinus rhythm at follow up (18/20 in group U vs. 16/20 in group B at a mean follow-up of 12±6 months).
Conclusion: This preliminary, pilot study suggests that both unipolar and bipolar RF devices are equally safe and effective in achieving pulmonary vein isolation and in maintaining sinus rhytm at follow-up; although more technically demanding, the use of bipolar device alone was as successful as unipolar in tracing intra-atrial lines. Additional studies are warranted in order to clarify indications to either RF modality.

C06 - 2

SURGICAL TREATMENT OF CONCOMITANT ATRIAL FIBRILLATION

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Objective: Review of early and late results of surgical treatment of atrial fibrillation as a concomitant procedure during open heart surgery.
Methods: Prospective data analysis of patients undergoing combined open heart surgery and Minimaze technique for atrial fibrillation. Early postoperative standard protocol and outpatient clinic visit at 1, 3 and 6 months for early follow-up. Late follow-up through questionnaire from referring cardiologists.
Results: Between November 1999 and Oct 2004, 220 pts did undergo Minimaze procedure. Fifty-seven% or male patients (126/94). Isolated Valve(s) surgery was performed in 159 pts (72.3%). Valve with CABG in 44 pts (20%), CABG in 12 pts (5.4%) and other cardiac surgery in 5 pts (2.3%). Port-Access approach was used in 107 pts (48.6%), median sternotomy in 112 pts (50.9%) and hemisternotomy in 1 pt (0.5%). Pts presented with a LA diameter mean 5.5 cm and 65 pts (29.5%) presented with intermittent atrial fibrillation. Energy sources used were unipolar RF frequency in 172 pts (78.2%). Bipolar RF frequency in 16 pts (7.3%), Microwave in 5 pts (2.3%), cryo in 25 pts (11.4%) and Ultrasound in 2 pts (1.9%). There were no major technique related complications. All patients received class III antiarrhythmic drugs for 6 months. No atrial fibrillation rhythm was present in 73.7%, 72.7%, 72.1%, 62.6% and 48.7% at respectively 6, 12, 24, 36 an 48 months. PM implantation was necessary in 26 pts (12%). Thromboembolic events occurred in 9 pts (0.8%/pt/y) en AC bleedings in 7 pts (0.6%/pt/y).
Conclusion: Association of surgical therapy for atrial fibrillation during open heart surgery does not increase peri operative morbidity and mortality and offers very satisfactory late results.

C06 - 3

CLINICAL RESULTS OF DIFFERENT TYPES OF APPROACHES FOR SURGICAL TREATMENT OF CHRONIC ATRIAL FIBRILLATION

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Objective: At present the Maze-3 operation is considered a gold standard surgical procedure for restoration of sinus rhythm and atrial contractility in atrial fibrillation (AF). It is unknown, which type of operations is the most effective and safe in patients with chronic AF, including that associated with congenital and acquired heart disease. This study presents long-term results of different modifications of surgical treatment for chronic AF.
Methods: From September 2000 to October 2005 we performed 155 combined operations for chronic AF and mitral valve disease treatment (MV plasty or prosthesis implantation), including 67 radical operations for chronic AF: 24 patients (pts) underwent Maze-3 operation, 26 - a irrigated RF modification of Maze-3 and 17 – a cryo-modification of Maze-3 operation. Mean age of patients was 46.8±11.9 years (range 28–66 years), AF duration was 3±2.3 years (6 months - 7 years). Average pre-operative LA dimension was 6.45±1.2 cm (5 - 8.4 cm). All patients were NYHA class III - IV.
Results: From the 67 pts who underwent radical surgery for reversal of chronic AF, 1 pt (1.5%) died in hospital as a result of spontaneous rupture of the LV posterior wall after RF modification of the Maze-3 operation and LA plication. In general, by the time of discharge 85% of patients had sinus rhythm. None of our patients needed pacemaker implantation for postoperative AV block or sinus node dysfunction at hospital discharge. Results of the different types of the Maze-3 operations were evaluated after 48±8.4 months by Santa Cruz scale (Melo J. et al. 1998) with scores ranging from 0 to 4. All patients with sinus rhythm (*n* = 50. 75%) had score 4, atrial contractile function of both atria was preserved in all of them up to 5 years after surgery. Two patients who had score 3 needed permanent pacemaker implantation at long-term follow-up, as their atrial function is preserved.
Conclusion: Our experience shows the reproducibility of different modifications of Maze-3 operation with overall long-term effectiveness over 80%. The cryo-modification of the "maze" operation are currently preferable in patients with moderately increased LA. It is necessary to strictly follow the protocol of procedure technique, as well as to combine the operation with the reduction of LA cavity and left atrial appendages closure.

C06 - 4

SURGERY FOR ATRIAL FIBRILLATION WITH RADIOFREQUENCY ABLATION: FOUR YEARS EXPERIENCE

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Objectives: Even if is already demonstrated that the gold standard for the surgical treatment of atrial fibrillation is the Cox-Maze procedure, in the last years, an important expansion of new sources of energy to cure the arrhythmia has occurred, gaining popularity in the surgical community and obtaining very good results in terms of sinus rhythm restoration. In this paper we present our experience with the surgical ablation of the atrial fibrillation by using radiofrequency.
Methods: From May 2001 until December 2005, 183 patients underwent in our center pulmonary vein isolation using radiofrequency. For the first years we have used monopolar radiofrequency, through the endocardial approach in 40 patients and then epicardial approach in 33 cases. On May 2003 we started to use the bipolar radiofrequency in a total of 120 cases until now. All ablations have been applied in association with other cardiac procedures, which varies from the mitral valve surgery, congenital cardiopathies, complex operation of the proximal aorta etc. The mean age of the population ranged from 17 to 90-years-old and 67.7% of patients were female. In 91% of cases, atrial fibrillation was permanent. Neither the duration of the atrial fibrillation, neither the left atrial dimensions, nor the re-operations have been considered controindications to ablation. All three groups have been followed and compared.
Results: Postoperative mortality ranges from 3.8 to 5%. In hospital mortality, as well as the incidence of complications have been not conditioned by the association of the ablation procedure. In the early postoperative period the percentage of sinus rhythm was about 60% in the endocardial-monopolar group, 78% in the epicardial monopolar group and 87% in the bipolar group. At the follow-up time of, which varies from 6 to 36 months, sinus rhythm is

present in the 75% of patients of the first group, 70% of the second group and 83.2% of the third group.
Conclusion: The use of radiofrequency for electrical isolation of pulmonary veins and to replace other Cox-Maze incisions is safe and effective. With the bipolar radiofrequency ablation we have obtained better results in terms of sinus rhythm restoration. Moreover, since it is even easier to perform and theoretically, ensures the transmurality, we have extended the indications, even in cases of very complex operations.

C06 - 5
EFFICACY OF SURGICAL BEATING HEART ABLATION WITH BIPOLAR RADIOFREQUENCY DEVICE FOR PAROXYSMAL AND PERMANENT ATRIAL FIBRILLATION
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Objective: We report clinical experience, short- and mid-term results of the ablation of the non-mitral atrial fibrillation in patients with paroxysmal and permanent atrial fibrillation with use of a novel irrigated bipolar radiofrequency system.
Methods: From registry of 160 ablations a subset of 40 non-mitral patients (mean age 68.1 ±11 years) treated with irrigated bipolar radiofrequency device was chosen. Twenty eight patients with documented, symptomatic, PAF underwent pulmonary vein isolation. 12 patients with permanent AF underwent ablation of the left atrium including pulmonary vein isolation and connecting lines between left and right pulmonary veins and the line to the mitral valve performed beating heart without opening of the left atrium. Ablation was a concomitant procedure to off-pump coronary artery bypass grafting (16 patients), on-pump coronary artery bypass grafting (CABG) (5 patient), aortic valve replacement (AVR) (12 patients), AVR and CABG (6 patients), aortic root replacement (1 patient). Acute conduction block was assessed in 11 patients. Prospective follow-up was collected during hospitalization, 3, 6, 12 months after discharge including 24-h Holter ECG and echocardiography.
Results: In the perioperative period either electrical and/or pharmacological cardioversion was performed in 22 patients (78.5%) with paroxysmal AF and in 10 patients (83.5%) with permanent AF ($P = 0.7$). There was no significant difference in SR rate at discharge between patients with paroxysmal and permanent AF – 28 (89.2%) vs. 9 (75%) patients, respectively ($P = 0.2$). During follow-up stable sinus rhythm in patients with paroxysmal AF was observed in 15 patients (71.4%) after 3 months, in 14 patients (93.3%) after 6 months, in 7 patients (100%) after 12 months. Significantly lower SR rate was found in patients with permanent AF with SR recorded only in 2 patients after 3 months and 4 patients after 6 months.
Conclusion: These data confirm high effectiveness of bipolar radiofrequency device and pulmonary vein isolation for the treatment of paroxysmal AF. Presented technique for beating heart approach for ablation in permanent AF provides not satisfactory long-term results in this small cohort. Treatment of permanent AF in non-mitral patients including beating heart surgery remains a challenge.

C06 - 6
VERSATILITY OF A RADIOFREQUENCY BIPOLAR ABLATION SYSTEM AS A UNIPOLAR DEVICE
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Objective: Bipolar radiofrequency (RF) devices have been recently introduced in the surgical armamentarium for the treatment of atrial fibrillation. Despite their efficacy, a potential drawback is the difficulty in creating selected linear lesions (especially to the mitral annulus) during mitral surgery. We experimentally investigated whether the COBRA Bipolar (Estech; COBRA-bi) could function as a monopolar system and its efficacy when compared with the standard unipolar device (Estech; COBRA-uni).
Methods: Fourteen freshly-excised ovine hearts were used: ablations were performed in 9 with the COBRA-bi as monopolar device (Group 1,G1) and in 5 hearts with the COBRA-uni (Group 2,G2). Four segmental ablations were performed on each heart according to the following device settings: type A (150 W, 80° C, 60 sec), type B (150 W, 80°C, 90 sec), type C (150 W, 80°C, 120 sec) and type D (150 W, 80°C, 150 sec). Ablations were performed over the left ventricular free wall. Histology of ablations was performed by means of haematoxylin-eosin staining.
Results: The COBRA-bi functioned as a monopolar device and created macroscopic lesions: mean width:G1=3±0.5 mm vs. G2=8±0.7 mm, $P = 0.02$. Mean depths (mm) were similar between the groups except in type D settings (type A:G1=4.3±1 vs. G2=6.4±3.04, $P = 0.2$; type B:G1=6±1.32 vs. G2=8.4±3.04, $P = 0.15$; type C:G1=6.4±1.66 vs. G2=8.6±2.3, $P = 0.11$; type D:G1=7.77±1.09 vs. G2=10.8±1.3, $P = 0.002$).
Conclusion: Despite a wider experimental evaluation in chronic animal models is required, this study offers an innovative option in the use of the COBRA bipolar device. The versatility from a bipolar to a monopolar device could have considerable implications in the clinical setting, especially in terms of cost-effectiveness.

C06 - 7
SURGICAL RADIOFREQUENCY ABLATION FOR ATRIAL FIBRILLATION IN MITRAL VALVE DISEASE PATIENTS - OUTCOMES FROM PROSPECTIVE REGISTRY AFTER 2 YEARS
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Objective: The authors sought to examine in-hospital and two-year outcomes of endocardial radiofrequency ablation for atrial fibrillation (AF) in patients referred to surgical treatment of mitral valve disease.
Methods: From January 2003 (enrollment start) to September 2005 all patients (no selection) with AF reffered to mitral valve repair/replacement with or without other concomitant procedures (47 of 160 patients in registry) underwent endocardial ablation with irrigated unipolar radiofrequency device. Patients were at mean age of 62.2 (±10) years, with mean AF duration 4.1 (±4.4) years and mean left atrial diameter 51 (±8) mm. Patients were prospectively followed after 3, 6, 12, 24 months including echocardiography and 24-h Holter ECG.
Results: During in-hospital stay in 33 patients (75%) eighter electrical and/or pharmacological cardioversion was needed and in 6 patients (12.7%) temporal external pacing was performed. 33 patients (75%) were discharged in sinus rhythm (SR). After 3, 6, 12, 24 moths there were 26 (70.2%), 24 (75%), 11 (61%), 6 (60%) patients in SR, respectively. After 24 months pacemaker was implanted in 2 patients. We found that perioperative AF significantly prolongs mechanical ventilation time and intensive and intermediate care unit stay (9.5, 95% CI 6.5 to 13.4 vs. 29.9, 95% CI 6.3 to 74 h) and (5.4, 95% CI 4.5 to 6.4 vs. 11.3, 95% CI 5.6 to 16.8 days), respectively ($P<0.05$). Comparing to patients sustaining SR those with AF after 3 and 6 months had significantly more often occurrence of rhythm disturbance syndromes ($P<0.05$).
Conclusion: Data from prospective registry show that AF in patients with mitral valve disease may be successfully treated in all “real-life” cases. Perioperative AF does not impact on long-term ablation efficacy however freedom from AF in early postoperative period supports less complicated course. Effective AF ablation may provide better long-term quality of life due to arrhythmia symptoms reduction.

C06 - 8
ASSESSMENT OF CHRONOTROPIC COMPETENT SINUS RHYTHM AFTER SURGICAL ABLATION OF ATRIAL FIBRILLATION
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Objective: To assess chronotropic competence of restored sinus rhythm (SR) after surgical ablation for chronic atrial fibrillation and its clinical impact.
Methods: Sixteen patients (13 m/3 f) in SR (24.375±16.43 months postoperatively) following cut-and-sew ($n = 2$) and radiofrequence ($n = 14$) ablation due to chronic atrial fibrillation underwent treadmill exercise testing (ramp protocol). 12/16 had concomitant mitral valve reconstruction. End points were occurrence of clinical symptoms and severe arrhythmia or accomplishing working capacity (male: 2W/kg, female: 1.5W/kg) maximum heart rate (male: 210-age, 80%; female: 220-age, 80%) and more than doubled rate pulse product. Change of NYHA Classification, need for anticoagulation and antiarrhythmic drugs were evaluated.

Results: During exercise all patients remained in SR. 2/16 (12.5%) patients showed mild ventricular extrasystolies. No blockage was seen. Termination was due to tiring legs in all patients. Mean measured exercise capacity was 132.5±36.42 Watts vs. calculated 143.83±26.44 Watts (P = 0.31). Maximum accomplished heart rate was 127.06±17.39 beats/min vs. computed 115.6±11.16 beats/min (P = 0.023). Mean rate pulse product under exercise was 20972±4510 vs. calculated 20171±5411 (P = 0.314). NYHA classes decreased from 2.56±0.72 to 1.18±0.54 (P<0.05). 6/16 ceased anticoagulation, 10/16 antiarrhythmic drugs.
Conclusion: In this study we could reveal restored chronotropic-competent SR after surgical ablation of chronic atrial fibrillation. Even under exercise testing patients remained in stable SR, thus anticoagulation was stopped in all cases. Patients showed a significant drop of NYHA classes.

C06 - 9

MID TERM OUTCOME FOLLOW SURGICAL ABLATION OF ATRIAL FIBRILLATION WITH MONOPOLAR RADIOFREQENCY: MAINTENANCE OF SINUS RHYTHM AND RECOVERY OF ATRIAL CONTRACTION

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Objective: Radiofrequency ablation on left atrium during mitral valve surgery has been estabilished as safe and effective method for the treatement of atrial fibrillation (AF). In studying patients (pts) undergoing mitral valve surgery and AF ablation with left atrial endocardial monopolar radiofrequency, we sought to quantify the prevalence of sinus rhythm (SR) and the recovery of atrial contraction postoperatively.
Methods: The rate of stable SR and the left atrial contractile function were investigated in 85 (47 males, 66±8 years) consecutive pts with permanent (72.7%) or paroxysmal (27.3%) AF; before mitral surgery the lines of lesions were applied around the two ipsilateral pulmonary veins (PV) and the atrial appendage; additional lines were performed between the two PV and from the right PV to the posterior mitral annulus. PV isolation was assessed by electrophysiological evaluation (EE) positioning surgical electrodes in both Pv and in right atrium; the first EE was performed acutely in operating room at the end of oparation, and the second on the 4th postoperative day.
Results: A permanent pace-maker was implanted on 5th and 7th postoperative day in 11 pts because sino-atrial or atrio-ventricular conduction disturbances. 27±12 monts follow-up showed that stable SR was present in 38/42 pts with complete isolation of both groups of ipsilateral PV, and in 19/34 pts in whom only one group of PV or none were completely isolated. Nine pts were in stable SR, and they were excluded from EE because inability to positioning surgical electrodes (redo operations). Overall, 66/85 pts (77.6%) are in stable SR. Recovery of left atrial contraction in SR was observed in 67% of pts at 3 months and in 92% at 6. Quantitative Doppler flow mitral analysis (E/A ratio-normal value 2±2.3) showed a trend toward progressive recovery (3.42 at 3 and 2.26 at 6 months respectively). In 2 cases the tissue Doppler analysis only was able to identify the left atrial contraction.
Conclusion: The complete isolation of all PV, demonstrated at intraoperative mapping, is related to the long term maintenance of SR. Quantitative analysis suggests a late recovery of left atrium contractility, and the term of 6 months is appropriate to evaluate the extent of recovery. We suggest to maintain the anticoagulant therapy till the echocardiographic evidence of left atrial contraction.

11.30-13.00
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3RD CARDIOVASCULAR SCIENTIFIC SESSION

CV03 - 1
FEASIBILITY AND EFFECTIVENESS OF ENDOVASCULAR TREATMENT FOR ACUTE TRAUMATIC RUPTURE OF THE DESCENDING THORACIC AORTA
Pratesi C., Troisi N., Di Vito Francesco M., Di Carlo F., Dorigo W., Pratesi G., Stefano P., Pulli R.
Department of Vascular Surgery, University of Florence, Italy, Florence, Italy; Department of Cardiac Surgery, Careggi Hospital, Florence, Italy

Objective: Acute traumatic rupture of the descending thoracic aorta is usually considered a surgical emergency; conventional surgical approach carries high morbidity and mortality rates in the perioperative period. Endovascular surgery has recently been considered as providing a new therapeutic strategy for these patients. The aim of our study was to evaluate the feasibility along with early and midterm results of this procedure in our experience.
Methods: Among 59 thoracic stent-graft procedures performed between May 2001 and May 2005 in our Department, 11 male patients (mean age 48±7.3 years) underwent endovascular repair for acute traumatic rupture of the descending thoracic aorta due to motor vehicle accidents. The feasibility of endovascular repair and the size of the endograft were assessed on the basis of urgent spiral computed tomography (CT). In all the cases the lesion was limited to the isthmus. Follow-up was performed at discharge, then at 3, 6, 12 months and yearly thereafter by clinical examination, chest X-ray and CT scan.
Results: Technical success was obtained in all patients and no conversion to open repair was necessary. No intraoperative deaths or complications occurred and no patient developed temporary or permanent neurological deficits in the postoperative period. One patient died 22 days after the procedure from acute respiratory failure; cumulative 30-day mortality rate was 9.1%. The mean follow -up duration was 18.2±4.5 months. No death, endoleak and reintervention occurred during follow-up.
Conclusion: The treatment of acute traumatic rupture of the descending thoracic aorta with stentgraft is a feasible and safe technique; it provides low morbidity and mortality rates in early postoperative period and midterm results are encouraging. However, long-term studies are worthwhile to evaluate the effectiveness and the durability of this procedure.

CV03 - 2
HYBRID SURGERY FOR ACUTE TYPE A DISSECTION
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Objective: Acute type A dissection is a life threatening emergency associated to high mortality and morbidity rates, especially when aortic arch surgery is required. Deep hypothermia, circulatory arrest, cerebral perfusion and elephant trunk technique are damning factors of this heavy surgery. Results of the hybrid surgical and endovascular treatment of the aortic arch in non acute situations have been described as acceptable, and we aimed at applying this less invasive approach for acute type A dissections involving the aortic arch in high-risk patients unfit for aortic arch replacement.
Methods: From December 2004 to December 2005, we treated 4 high-risk patients in emergency for acute type A dissection involving the aortic arch. The average age was 57.5. All patients presented with hemopericardium associated to circulatory shock. Risk factors were aortic valve insufficiency in 3, high blood pressure and chronic renal insufficiency in 2. Cardiopulmonary bypass was started under normothermia or moderate hypothermia, while retrograde blood cardioplegia was used for myocardial protection. After the ascending aorta was clamped at the level of the innominate artery, it was opened longitudinally. Associated repairs were performed: aortic valve replacement (1), aortic valve plasty (2), valsalva reconstruction (1) and right aorto-coronary bypass (2). The ascending aorta was then replaced by a 5 cm long Dacron® graft, on which a 12 mm graft tube was simultaneously inserted proximally in an end-to-side manner. This tube was anastomosed distally to the innominate artery in an end to end manner in 3 patients, while in the fourth it was replaced by a bifurcated bypass to the right subclavian and common carotid arteries. In a delayed procedure, a carotid-carotid bypass was associated to the endovascular exclusion of the aortic arch with a stent-graft. In one patient, the false lumen completely thrombosed after the surgical step, and the endovascular intervention was avoided.
Results: During a mean follow-up of 8 months (4.6-12), there was no death and no neurological complication. All patients showed a thrombosed thoracic aortic false channel while it remained patent at the abdominal level.
Conclusion: The staged closed hybrid procedure we described is feasible and safe, and allows all cardiac surgeons to avoid aortic arch replacement for type A dissections in high-risk patients. It can be also easily performed in low volume centers. The evolution of the design of industrial devices towards increased flexibility and length would certainly bring further security and efficacy.

CV03 - 3
DEVELOPMENT OF AN INTERNET-BASED DATABASE FOR PATIENTS WITH TYPE-A DISSECTIONS: FIRST STEPS ON THE WAY TO A NATIONWIDE DATABASE
Weigang E., Maersch U., Luehr M., von Samson P., Hartert M., Richter H., Beckmann N., Beyersdorf F.
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Objective: There is no existing nationwide database on patients with aortic diseases in Germany. Thus we developed an internet-based database to record preoperative, intraoperative and long-term data of patients with type-A dissections undergoing surgical treatment of the aorta to optimize future patient treatment.
Methods: The database consists different categories containing data concerning preoperative and intraoperative state, postoperative complications and cause of death. The collected data can be used with several other IT-programs, allowing continuous, flexible data analyses.
Results: The interactive data processing system records the patient´s entire clinical course and enables the user to find and assemble data easily for documentary, scientific purposes and quality control.
Conclusion: This new internet-based database for patients suffering from type-A dissection is a valuable tool for improved patient treatment.

CV03 - 4
RIGHT AXILLARY ARTERY CANNULATION FOR CARDIOPULMONARY BYPASS AND ANTEGRADE CEREBRAL PERFUSION WITH/WITHOUT MODERATE HYPOTHERMIA IN AORTIC SURGERY
Kang J., Chung C.
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Objective: Femoral cannulation for aortic surgery ronary and/or cerebral perfusion through possible false lumen perfusion resulting fatal postoperative neurologic damage. As an alternative approach, axillary artery cannulation was introduced.
Methods: Sixty-nine patients of aortic disease were operated from March 2000 to December 2005 in our institution. There were 35 males and 34 females. The mean age was 57.7 years. Diagnoses were 54 aortic dissections, 8 aneurysms, and 2 aortic rupture, 2 intramural hematoma, 3 aortitis. Right axillary artery cannulation was used as a route for arterial inflow and selective cerebral perfusion during arch procedure in all patients.
Results: The mean CPB/ACC times were 206.1±10.9/114.4±6.6 min. The mean selective cerebral perfusion time was 32.0±6.5 min. There were 2 operative deaths. Bleedings that required reoperation were 3, and there was no documented neurological complication.
Conclusion: The right axillary artery cannulation may be comparably safe and more effective method than conventional cannulations for maintaining arterial inflow and providing the cerebral perfusion during aorta surgery especially involving arch.

CV03 - 5
COMBINED EXTRA-ANATOMIC APPROACH FOR TREATMENT OF TYPE A ACUTE AORTIC DISSECTION INVOLVING THE AORTIC ARCH
Calleja M., Lima P.P., Cañas A., Almodóvar L.L., Orgaz A., Fontcuberta J., Flores A., Doblas M.
Department of Cardiac Surgery, Complejo Hospitalario de Toledo, Toledo, Spain; Department of Angiology and Vascular Surgery, Complejo Hospitalario de Toledo, Toledo, Spain

Objective: Acute type A aortic dissections that involve the origins of the supra-aortic trunks continue to represent an important surgical challenge.

The objective is to present our experience with a case where the pathology was successfully treated by a combined approach, which included the implantation of an endoprosthesis in the aortic arch.
Methods: We treated a 69-years-old woman with an acute type A aortic dissection without aortic insufficiency. Her aortic arch was greatly dilated and contained multiple intimae-media fractures, some of which involved the origins of the supra-aortic trunks. The surgical approach was as follows: 1) carotid-carotid bypass with 8 mm PTFE. 2) Arterial cannulation of the right axillary artery. 3) Median sternotomy, deep hypothermia and circulatory arrest. 4) Re-suspension of the aortic valve and replacement of the ascending aorta from the supracoronary portion until just distal to the origin of the brachiocephalic trunk, using an "elephant trunk" technique. The brachiocephalic artery was clamped, and the origins of the left common carotid and subclavian arteries were closed. Selective cerebral perfusion was maintained via the right axillary artery cannula at a rate of 10 cc/Kg/min. A 32 mm Hemashield graft, with a 10 mm side branch, was used as the aortic implant. The side branch was sewn end to end to the brachiocephalic trunk thus re-establishing complete cerebral circulation via the prior extra-anatomic bypass. At a later date, the arch dissection was treated with two Goretex Tag endoprosthesis, implanted from the ascending aorta distal to the brachiocephalic bypass, past the left subclavian artery into the descending aorta. This was done via a femoral approach.
Results: The time taken from the establishment of cardiopulmonary bypass to replacement of the aorta was 85 min, during which cere-bral perfusion was maintained in an antegrade fashion. The patient was taken back to the operating room six days later for treatment of the aortic arch dissection with endoprosthesis. Her neurological, renal, hemodynamic and metabolic recovery was total but, she still has non-ventilator dependent insufficiency, likely due to a paralyze left hemidiaphragm.
Conclusion: The success of our surgical strategy in the case should prompt us to consider alternative extra-anatomic combined approach, especially when there is a complex dissection involving the aortic arch.

CV03 - 6
REOPERATION ON THE PROXIMAL AORTA OR AORTIC ARCH THROUGH REMEDIAN STERNOTOMY FOLLOWING PREVIOUS CARDIOVASCULAR SURGERY
Bashar Muhammad A., Kazui T., Yamashita K., Washiyama N., Suzuki K., Terada H.
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Objective: To evaluate the early outcome of reoperation on aortic root, ascending aorta or aortic arch through re-median sternotomy following previous cardiovascular operations.
Methods: A total of 50 patients including 11 with Marfan's syndrome (mean age 55±1 years) required reoperation on the aortic root, ascending aorta or aortic arch through re-median sternotomy for various aortic pathologies from 1986 through the end of 2004. Primary operative procedures in these patients included aortic valve replacement (20%), aortic root replacement (28%), total arch replacement (22%), ascending aortic replacement or hemiarch replacement (14%), and aortic valve replacement+ascending aortic repair (6%). Major indications for reoperation were aortic dissection, aortic root aneurysm, pseudoaneurysm, and prosthesis-related complications. A total of 53 reoperations were performed that included aortic root replacement using the coronary button technique (55%), ascending aortic replacement + total arch replacement±descending aortic replacement (32%), and ascending aortic replacement or hemiarch replacement (13%). Mean interval between the initial operation and the reoperation was 71±6 months. Prior institution of cardiopulmonary bypass cannulating the femoral artery was carried out before re-sternotomy when necessary.
Results: Intraoperative mortality was 2% while the in-hospital mortality was 6%. Cause of intraoperative death was bleeding while those for in-hospital death were recurrence of infection and cerebral infarction.
Conclusion: 1. Reoperation for prosthesis infection or infectious pseudoaneurysm carries a high mortality. 2. Reoperative outcome in non-infectious cases is satisfactory. 3. Coronary artery reconstruction using the Carrel patch method is feasible in most cases of aortic root replacement. 4. Marfan patients with acute dissection should receive radical operation so that no aortic lesion is left out.

CV03 - 7
TRAUMATIC THORACIC AORTIC INJURY: RESULTS FOLLOWING ENDOVASCULAR MANAGEMENT
Bent L.C., Matson M., Renfrew I., Sobeh M., Walsh M., Kyriakides C.
Royal London Hospital, London, England

Objective: To evaluate the safety and efficacy of endovascular repair for traumatic thoracic aortic pathology.
Methods: Between October 2001 and November, 10 patients were diagnosed with traumatic thoracic aortic injury and treated with endovascular repair (7 male, 3 female). Their ages ranged from 16 to 66 years of age (mean 40 years). All patients underwent CT angiography of the aorta. Following imaging, 4 patients were diagnosed with partial aortic transection, 4 with aortic pseudo aneurysm formation and 2 with aortic dissection. Associated injuries were documented in all patients.
Results: Patients were treated within a median of 24 h following trauma. All endovascular stentgrafts were deployed successfully. One patient required emergency graft explantation due to proximal migration of the initial endovascular stent-graft. Two patients experienced access-related complications requiring iliofemoral bypass surgery. At completion angiography, one patient demonstrated a small endoleak which resolved spontaneously. All patients were alive 30 days following endovascular repair. At follow-up, no endoleaks were identified (median duration of follow-up 14 months, range 1 to 42 months).
Conclusion: Our experience demonstrates the feasibility of endovascular repair for thoracic aortic injury following trauma with results that compare favourably to those published of emergency open repair.

CV03 - 8
THORACIC AORTIC EMERGENCIES: IS THE ENDOVASCULAR TREATMENT THE NEW GOLD STANDARD
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Objective: Open surgery of the descending thoracic aorta, such as aneurysm rupture, traumatic rupture and complicated type B aortic dissection are The Aortic traumatic rupture and aortic aneurisms can be successful treated with the deployment of thoracic endoprosthesis. This approach has been proven to be safe, effective and consistent. However, the procedure still hides few pitfalls that can potentially affect the clinical outcome. Sharing our experience will probably help other surgeons to make the endovascular repair of descending thoracic aorta diseases a straightforward procedure.
Methods: Forty-five patients underwent endovascular repair of descending thoracic aorta diseases: 18 patients suffered of traumatic aortic rupture and 27 of aortic aneurism. Diagnosis was confirmed with CT scan. The criteria for the endovascular repair of aortic traumatic rupture were: isolated intimal lesion, aortic wall haematoma and aortic rupture involving less than 1/3 of the aortic diameter with or without type B aortic dissection. Endoprosthesis was deployed under intra vascular ultrasound (IVUS) and fluoroscopy control. The criteria for successful endovascular procedure were the occlusion of thoracic tears, the complete exclusion of the aneurism and the absence of endoleaks according to the thoracic CT-scan 1week after the aortic repair.
Results: Forty-five patients received 51 endoprosthesis. Mean age was 52.6 year (14 to 77). In 1 patient the graft was deployed into the brachio-cephalic trunk without causing cerebral lesions and was removed 8 weeks later with standard surgical approach to the aortic arch. 2 patients suffered of diffuse cerebral embolism related to the endovascular procedure; subclavian artery origin was occluded in 4 patients, none received immediate or delayed subclavian artery revascularization; 2 patients had laceration of the vascular access that required extensive vascular reconstruction; 1 patient had endoprosthesis disconnection causing endoleak type IV.
Conclusion: Preoperative accurate sizing of the arterial access and in situ introducer sheath dilatation can avoid vascular lesions due to the introduction of the delivery system. Precise positioning of the guide wire into the left ventricle and identifications of all supra aortic trunks will dramatically reduce the risk of wrong deployment of the endograft. Huge and long aortic aneurism, whenever possible, deserves one single long prosthesis instead of 2 sequential shorter prosthesis to avoid the risk of disconnection.

CV03 - 9

GASEOUS AND SOLID CEREBRAL MICROEMBOLIZATION DURING PROXIMAL AORTIC ANASTOMOSES IN OFF-PUMP CORONARY SURGERY: THE EFFECT OF AN AORTIC SIDE-BITING CLAMP AND TWO CLAMPLESS DEVICES

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Objective: Intraoperative cerebral microembolism correlates with cerebral injury following cardiac surgery. Particulate microemboli are the most damaging. Using a new generation transcranial Doppler ultrasound, we compared number and nature of microemboli in patients undergoing off-pump coronary artery bypass grafting during performance of proximal anastomoses using three techniques: an aortic side-biting clamp and two clampless devices (the Enclose®II device (Novare™) and the Heartstring®II device (Guidant™) developed to obviate the need for an aortic side-clamp thereby reducing the number of cerebral microemboli.
Methods: Bilateral continuous monitoring of the middle cerebral arteries was performed using a multirange, multifrequency transcranial Doppler device which both automatically rejects artefacts online and discriminates between solid and gaseous microemboli. Recordings were continuously undertaken during performance of 66 proximal aortic anastomoses in 42 patients. Thirty five anastomoses were performed using an aortic side clamp, 20 the Enclose device and 11 the Hearstring device.
Results: Most microemboli occurred during application/insertion and removal of each device from the ascending aorta. The median number (interquartile range) of total microemboli was 11 (6–32) during side-clamping, 11 (6–15) with the Enclose device, 40 (31–48) with the Heartstring device ($P<0.01$). The proportion of solid microemboli was significantly higher in the side-clamp group (23%) compared to 6% and 1% in the Enclose and Heartstring groups respectively ($P<0.01$).
Conclusion: Avoidance of aortic side-clamping results in a significant reduction in the proportion of solid microemboli detected using transcranial Doppler. As solid microemboli are probably the most damaging, use of the Enclose and Heartstring devices may represent an important strategy for minimizing cerebral injury during proximal aortic anastomoses.

11.30-13.00
MAY 13, 2006 3RD CONGRESS DAY

5TH VASCULAR SCIENTIFIC SESSION
ENDOVASCULAR TREATMENT OF AAA

V05 - 1
APPLICABILITY OF GLASGOW ANEURYSM SCORE AND HARDMAN INDEX TO ELECTIVE ENDOVASCULAR AORTIC ANEURYSM REPAIR
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Objective: The Glasgow Aneurysm Score (GAS) and Hardman Index (HI) are used to predict mortality in patients with ruptured abdominal aortic aneurysm (AAA) and have recently been shown to correlate with outcome following elective open repair. This study aimed to explore the value of these scoring systems in predicting outcome after elective endovascular aortic aneurysm repair (EVAR).
Methods: All 71 patients who underwent elective EVAR in a centre over 9 years were reviewed. Clinical data was used to classify patients in to the three standard GAS tertiles and to score patients according to the HI
Results: Fifty-one patients had a GAS score over 77. Actual and predicted mortalities in this group were 3.9% and 9.3%. Seventeen patients scored between 69-77 with actual and predicted mortalities of 0% and 4.1% .3 patients scored less than 69 with actual and predicted mortalities of 0% and 2.4%. Actual morbidity was far less than predicted in all tertiles of GAS. 10 patients scored = 3 on the HI with actual and predicted mortalities of 10% and 100% respectively. Twenty-four patients scored 2 with actual and predicted mortalities of 4.2% and 55%. Twenty-seven patients scored 1 with actual and predicted mortalities of 0% and 28% respectively. Ten patients scored 0 with actual and predicted mortalities of 0% and 16% respectively. Similarly there was marked difference in actual and predicted morbidities in this group.
Conclusion: Contrary to their role in ruptured and open aortic aneurysm repair, GAS and Hardman Index overestimate both mortality and morbidity following EVAR and are poor predictors of outcome. We need to formulate new risk stratification system for endovascular abdominal and thorasic aortic aneurysm repair.

V05 - 2
CONTRAST ULTRASOUND IMAGING: THE BEST METHOD TO DETECT TYPE II ENDOLEAK DURING EVAR FOLLOW-UP
Giannoni M., Gazzetti M., Fanelli F., Citone M.
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Objective: EVAR has proved to be an effective treatment alternative to conventional surgery in selected patients. However, although the short term results demonstrated a minor mortality and morbility incidence compared to open surgery, there is no evidence of long-term durability because of the relevant number of late specific complications, that can manifest suddenly, even many years after the procedure. Therefore a close long-term surveillance is required. Hence the need to validate new techniques as alternative to spiral CT scan, the currently accepted reference standard. Endoleak is the most frequent adverse event :5 different type of leakage have been identified, requiring different therapeutic strategies. Type II endoleaks are the most common complication after EVAR: they represent a challenge : they usually disappeare during the follow-up, but sometimes cause the aneurysm sac to enlarge, thus leading to rupture or to graft detachment. Despite its notable advantages, ultrasonography has not yet achieved reference standard status. Nowadays new ultrasonographic technologies are available. Cadence Contrast Pulse Sequencing (CPS) is a real time imaging technique specific for 2nd generations contrast agents, originally used in myocardial tissue perfusion evaluation. Aim of this study was to assess the reliability of US using CPS processing technique and a 2nd generation signal enhancer
Methods: Previous informed consent in a prospectic double blind study 30 patients with endovascular stent grafts underwent both to ultrasound investigation with second generation echocontrast agent and thriphasic helical CTa: No more than 15 days occurred between the two examinations. Variables analysed were changes in the maximum diameter of the aneurismal sac, presence and type of endoleak, if present. In case of disagreement between the two diagnostic tools angiography was performed.
Results: one patient dropped out because of violation of the study protocol. Both diagnostic exams visualized graft patency and proper graft placement in all remaining patient. Measurement of aneurismal diameters with both investigations substantially overlapped (rs:0.98). In 21x patients both CTa and enhanced US did not visualized endoleaks and pointed outa significant aneurismal sac shrinkage (P<0.001). In 7 patients both enhanced US and CTa detected an endoleak. Type was identified by Ultrasound in all cases, while CT scan was incertain in one. Moreover in 1 patient CTa did not detected endoleak but showed an increased aneurysmal diameter, while ultrasound disclosed a type ii low-flow endoleak, confirmed by angiography.
Conclusion: 2nd generation signal enhancer combined with CPS overcome the limitations of earlier US techniques, substantially improving the diagnostic reliability.

V05 - 3
RELIABILITY OF DUPLEX ULTRASOUND IN FOLLOW-UP OF PATIENTS TREATED WITH ENDOVASCOLAR REPAIR OF ABDOMINAL AORTIC ANEURYSM
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Objective: Endovascular aneurysm repair (EVAR) has been demonstrated to provide good early results with high rate of technical success, low morbility and mortality. However, the incidence of longterm complications is not negligible, the commonest being endoleak. Several methods have been proposed to perform follow-up of patients undergone EVAR; however, there is no evidence concerning the best method. The aim of this study was to compare duplex scanning ultrasound (DUS) and angio-Computed Tomography (angio-CT) scan in follow-up of patients treated with EVAR.
Methods: The study group consisted of 189 patients treated with EVAR in last 5 year. The follow-up consisted of DUS at discharging, angio-CT scan at 1-12 months and yearly thereafter, and DUS at 1-6-12 months and yearly thereafter. All DUS studies were performed by the same skilled physician on the basis of Italian Guidelines for Vascular Diagnosis. The mean follow was 12 months. Over-all had been executed 189 DUS and 258 angio-CT. We considered only the patients who had DUS and angio-CT executed within 15 days of each other (102 cases). Size of aneurysm, presence, site and kind of endoleak were compared, and sensitivity and specificity of the two methods were analyzed.
Results: Estimated maximum diameter of aneurismal sac was 48.8 mm at DUS and 51.6 mm at angio-CT (P<0.001). However, this difference never reached 5 mm. Eighteen endoleak were recorded with angio-CT scan and 20 with DUS. DUS provided 3 false negatives and 5 false positives. Sensitivity of DUS compared with angio-TC scan was 83.3%; specificity was 93.9%. Positive predictive value (PPV) was 75% and negative predictive value (NPV) was 96.2%. DUS had high sensitivity, specificity, PPV and NPV in detecting type I endoleak, while, in the presence of type II endoleak, DUS showed high specificity and NPV (94.2% and 95.3%, respectively). Two occlusions of endoprosthetic limb branch happened, both detected with DUS and confirmed by angio-CT scan.
Conclusion: DUS examination provides comparable results with angio-CT scan in follow-up of patients undergone EVAR, with high specificity and negative predictive value in evaluating the presence of endoleak. We suggest, in the presence of negative DUS examination, not to perform any further examination, while, in the presence of positive DUS examination, to proceed with further radiological follow-up methods.

V05 - 4
ANATOMY RELATED ENDOGRAFT SELECTION: IS IT A GOOD PREDICTING FACTOR FOR A SUCCESSFULL EVAR?
M.Andreoli R., Pacchioni R., Tedoli M., Nora A., Arienzo A., Pacchioni R.
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Objective: Aortic anatomy pre-operative study is a basic step for the correct choice of an endograft. Before the endograft implantation, three major inclusion criteria should be considered: Aneurysm localization and morphology, proximal neck lenght and configuration, aortic and iliac tortuosity. All of them are important to define the appropriate endograft, expecially in terms of infra or suprarenal fixation.
Methods: From March 2000 to 2005, 128 patients (123 males and 5 women, mean age 71.2 years) received an endograft for AAA. Three patients had anastomotic infrarenal pseudo aneurysms, two fistulas between prothesis and bowel. Only one patient has been operated in emergency. Mean AAa diameter was 53.0 mms., range 38-120, mean neck lenght 26.5, range 10-54. In 112 patients a bifurcated graft was implanted, in 16 an aortouniiliac. Whenever the proximal neck was cylindric and longer than 20 mms. we selected an

endograft featuring subrenal fixation: thus we placed 24 Excluder, 11 AneuRx, 1 Endologix, 1 Lifepath. In cases with shorter proximal neck, or tapered neck, or angulated or thrombus lined neck, we selected an endograft featuring a suprarenal fixation, specifically 37 Zenith (4 AUI) 51 Talent (12 AUI) 3 Fortron. Associated procedures: 15 iliac PTA, 15 IIA embolizations, 2 femoral EA. Three patients received an aortic proximal extensions, three patients needed an iliac femoral tube graft. One bifurcated endograft has been converted in AUI, one patient required surgical conversion. No patient died in the postoperative time. No major morbility occurred.
Results: Mean follow-up was 22 months, range 1 - 54. We found one case of proximal type 1 EL where a proximal cuff sealed a dilated proximal neck. No migration has been described but that case. Two patients received distal iliac extensions for distal type 1 EL. Type 2 endoleaks was detected in the 14.9% of the patients, but only two patients required a treatment for a growing AAA. Three patients underwent surgical conversion for endotension, two without evidence of EL, one for a type 3 endoleak. In one case the endograft has been left in place, for the cause of endotension was an hygroma.
Conclusion: In our opinion the proximal neck is the critical point for a successfull EVAR. The extensive use of suprarenal fixation is not necessary when the neck is long and cylindric. Our experience demonstrates that a selective use of bare springs stents in the suprarenal position guarantees a safe proximal fixation and stability of the endograft.

V05 - 5
RADIATION DOSE RECEIVED BY PATIENTS UNDERGOING ENDOVASCULAR ABDOMINAL AORTIC ANEURYSM REPAIR
Mohan I., Farrar V.A.
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Objective: Endovascular repair of abdominal aortic aneurysm (AAA) involves the use of diagnostic imaging and radiation exposure. Excessive radiation exposure has been associated with increased risk of malignancy. In this study we assess the dose of radiation received by patients undergoing endovascular AAA repair.
Methods: All patients having endovascular AAA repair between January 2003 and December 2004 were included. There were 121 patients, 107 male and 14 female. Median age was 74 (range 55–88). Pre-, intra- and post-operative radiological investigations were examined. All patients received a preoperative chest X-ray, computerized tomography (CT) scan and angiogram, an intra-operative angiogram and a post-operative chest X-ray, abdominal X-ray and CT scan. Some patients required more pre- and post-operative investigations.
Results: : Pre-operatively, there were a total of 204 plain chest X-rays performed (estimated radiation dose (RD) 0.1 millisievert/film), 135 thoracoabdominal CT scans (RD 22.8 mSv/scan) and 130 angiograms (RD 14.2 mSv/scan). Median fluoroscopy screening time for graft placement was 23.7 min (range 5.3 to 69.1 min), corresponding to a RD of 1.4 mSv/min. Post-operatively, there were a total of 373 chest X-rays performed (RD 0.1 mSv/scan), 330 abdominal X-rays (RD 10 mSv/film) and 128 abdominal CT scans (RD 14.5 mSv/scan). 20 patients had a post-operative angiogram (RD 14.2 mSv/scan). The total average patient radiation dose was 123 (range 87 –307) mSV, not including annual CT follow-up or investigation and treatment of complications. Assuming no complications after 5 years the average radiation dose would be 210 mSv.
Conclusion: The radiation dose received by each patient is significant (approximately 0.5 times the radiation dose received by atomic bomb survivors in Japan). With the increased survival time of patients undergoing endovascular AAA repair, consideration should be given to alternative follow-up investigative modalities (such as ultrasound) that may reduce total radiation exposure.

V05 - 6
ENDOVASCULAR VERSUS OPEN SURGICAL REPAIR OF ABDOMINAL AORTIC ANEURYSM WITH CONCOMITANT MALIGNANCY
Bracale G., Porcellini M., Del Guercio L., Carbone F., Bracale M.U., Russo A., Ficarelli I.
Department of Vascular and Endovascular Surgery, Federico II University of Naples, Naples, Italy

Objective: The management of patients with abdominal aortic aneurysm (AAA) and concurrent malignancy can be controversial. Therapeutic options include simultaneous surgical treatment of both pathologies, or a staged approach using either conventional open repair (OR) or the endovascular technique (EVAR). The aim of this study was to assess retrospectively the outcome of EVAR and/or for the treatment of AAA in patients with concomitant neoplastic condition.
Methods: A review of all patients admitted with a diagnosis of intact infrarenal AAA of 5 cm or greater and concomitant malignancy over a period of 7 years (1997–2004) was carried out.
Results: Of the 36 patients identified, five (13.9%, all men; mean age of 81 (74-86)) had an advanced malignancy and were managed palliatively. 31 patients underwent treatment for AAA. In 15 cases this consisted of EVAR (48.4%; 13 men) and in 16 of OR (51.6%; 15 men). The mean patients age was respectively 71.7 (59-82) and 69.5 (58-83) in the EVAR and OR groups. The 30-day morbidity rate was 6.7% in the EVAR group and 12.5% in the OR group. Moreover one patients (12.5%) in the OR group developed a prosthetic graft infection following left hemicolectomy. The perioperative mortality rate was 0% vs. 18.7% in the OR and EVAR group respectively. Mean follow-up was 25 months (range 8-48) in the EVAR group and 21 (range 9-32) in the OR group. During the follow-up five patients in the EVAR group and five in the OR group died. All the deaths in the EVAR group (100%) were cancer-related, whilst in the OR group four patients (80%) died because of the cancer and one (20%) died of sepsis 23 months after developed prosthetic graft infection.
Conclusion: EVAR is a safe technique for the treatment of AAA in patients with concomitant neoplastic disease and seems to carry a lower morbidity and mortality than OR.

V05 - 7
PELVIC ISCHEMIA AFTER ABDOMINAL AORTIC ANEURYSM REPAIR: EVAR VS OAR
Battocchio C., Mastroddi M., Polisetti F., Fazzini S., Filippi F., Stella N., Faraglia V., Di Mascio C.
U.O.C. Chirurgia Vascolare Ospedale S. Andrea Roma;, roma, Italy, Chirurgia Vascolare II Facoltà di Medicina e Chirurgia Università di Roma"La Sapienza", Rome, Italy

Objective: Pelvic ischemia is a rare and severe consequence of abdominal aortic open aneurysm repair (OAR) and endovascular aneurysm repair (EVAR). Aim of the study is to present a two year single center experience on pelvic ischemia incidence after OAR vs. EVAR.
Methods: We analysed 110 patients who underwent abdominal aortic aneurysm (AAA) repair (64 EVAR; 46 OAR) from September 2003 to November 2005.
Results: During EVAR (Group A) 19 times (30%) monolateral ipogastric artery (IA) cover (?) or embolization was required; during OAR (Group B) 3 monolateral and 2 bilateral IA interruptions (?) were necessary (total 11%). 37 of 110 patients (33%) showed signs or symptoms of pelvic ischemia: 17 EVAR (27%) and 20 (43%) OAR. Particularly, in Group A, 2 severe constipations, 2 neurologic disorders, 5 cases of gluteic (?) claudicatio and 11 (17%) of sexual dysfunction syndrome were reported. 76% of these disorders was present in patients with obliterated IA. In group B, 3 cases of severe constipation and 17 (37%) cases of sexual dysfunction syndrome were reported. All patients with mono or bilateral IA interruption presented sexual dysfunctions. In any case pelvic ischemia lead to sever morbilty or mortality. One Group B patient required intestinal resection due to a volvolus.
Conclusion: Complications due to pelvic ischemia are rare and EVAR seems to reduce their incidence. Sexual dysfunction can be considered a mild complication and occurs less frequently after EVAR than after OAR. 1/3 of all operated patients reports sexual dysfunctions. After IA ligation 2/3 of patients becomes affected by erectile dysfunctions. After EVAR retrograde ejaculation is anecdotically reported.

V05 - 8
ENDOVASCULAR TECHNIQUES FOR THE TREATMENT OF RUPTURE ABDOMINAL AORTIC ANEURYSMS. 7-YEARS INTENSION-TO-TREAT RESULTS
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Objective: The purpose of this single-Institution study is to describe our 7-years intention-to-treat results, with the use of endovascular techniques for the treatment of rupture abdominal aortic aneurysms.
Methods: From October 1998 until March 2005, a total of 28 patients were admitted or transferred to our department with a rupture abdominal aortic

aneurysm. Aneurysms were defined ruptured only if extravasation of blood surrounding the aneurysm was shown on the emergency CT scanning. They were all treated according to a management protocol of intention-to-treat by endovascular techniques. Twenty of them received an endovascular treatment and the rest 8 underwent an open surgery procedure. The intervention surgical or endovascular, started with the placement of a long introducer sheath and the placement of an aortic occlusion balloon at the level of L1. Then, in the surgical treated patients, general anaesthesia was induced and xifo-pubical median laparotomy was performed, while in the endovascular treated patients, local anaesthesia was performed also to the controlateral inguinal region and then cut-down to prepare the femoral artery. Eleven bifurcated endografts were used (8 modular and 3 non-modular) and 9 aorto-uni-iliac, combined with cross-over bypass.

Results: In all 28 patients endovascular aortic clamping was feasible. Two endovascular treated patients underwent an additional endovascular procedure for proximal type I endoleak that was treated successfully with an aortic extension. In other two patients conversion to open surgery was decided in the second and third postoperative day for type I and type II endoleak. Mortality rate of the endovascular treated patients was 40% (8 in 20), while in 8 surgical patients 3 survived (mortality = 62.5%). The overall mortality rate in the 28 patients admitted with a rupture abdominal aortic aneurysm was 46.43% (13 in 28 patients).

Conclusion: In our experience the intension-to-treat protocol for rupture abdominal aortic aneurysms offered acceptable results of mortality rates. Multi-center studies are necessary to establish the role of endovascular treatment in patients with rupture abdominal aortic aneurysms.

11.30-13.00
MAY 13, 2006 3RD CONGRESS DAY

6TH VASCULAR SCIENTIFIC SESSION
CEREBROVASCULAR INSUFFICIENCY II

V06 - 1

ABILITIES OF THE BRAIN AUDITORY EVOKED POTENTIALS AND PHOTOREACTIVITY TEST FOR DETERMINING THE INDICATIONS FOR SURGERY ON VERTEBRAL ARTERIES

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Objective: Urgency of the problem. Considering the instability of hemodynamics in the vertebralbasilar basin vessels and complexity of determining the pathognomic significance of the vertebral artery extracranial segments for cerebral ischemia, we have proposed a new method of assessment of the brainstem functional condition, the method proving to be important for determining the indications for surgical intervention in the extracranial arteries.
Methods: Fourty-six patients aged 31 to 68 were examined, the patients suffering from vertebral-basilar failure. The main clinical manifestations involved: the vestibularcerebellar syndrome - in 42 (91%); fainting fits - in 17 (36%); transitory ischemic attacks - in 28 (61%); ischemic stroke - in 9 (19%) patients. Functional tests consisted of two successively carried out techniques: the first one - the brainstem auditory evoked potentials of the brain recorded with the Nicolet Viking select machine using additional high-frequency stimulation; the second one: ultrasonic Dopplerography using the EME Nicolet Companion device with additional photo-stimulation and calculation of the photoreactivity index for posterior cerebral arteries. Of the 46 patients in 18, surgery was performed on the vertebral artery.
Results: In 43 (93.4%) patients, various dysfunctions were revealed in conduction at the level of either auditory nerves and/or brainstem. In 39 (84.7%) patients, the dysfunction of impulse conduction along the auditory pathways in the brainstem coincided with the side of the vertebral artery lesion. In 14 of the 18 patients examined in 6 months following the surgery on the vertebral artery, a positive dynamics of the evoked potential parameters was observed. In all 46 (100%) patients under study, a decrease in the photoreactivity index below 20% was observed, and in 19 (41%) patients, the index even became negative. In 16 of 18 patients examined after 6 months following the surgery on the vertebral artery, an increase of the photoreactivity index occurred.
Conclusion: A high sensitivity of the method of cerebral vessel photoreactivity study as well as of the modified method of investigation into the brainstem auditory evoked potentials has been shown in estimation of functional condition of the brainstem and the brain occipital lobes in patients with pathological conditions of extracranial segments of the vertebral arteries. This can be used for determining the indications for surgery on the vertebral artery as well as for assessment of efficacy of the conservative/surgical prophylactics of ischemic vertebral-basilar stroke.

V06 - 2

CORRELATION BETWEEN AORTIC ARCH TYPE AGE RELATED AND VASCULAR ACCESS TECHNIQUE: ONE CENTRE EXPERIENCE

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Objective: Recent data suggest that aortic arch anatomy is one of the most important factor to limit carotid stenting (CAS) technique. Patients age >80 years may be associated with increased risk of periprocedural complications because of the more complex aortic arch anatomy, tortuosity and calcifications. Conditio sine qua non to achieve a successful procedure is the guiding catheter stability in common carotid artery (CCA). Our aim was to analyze the correlation between aortic arch type, divided into three types, and the possibility to perform a safe procedure with guiding catheter method.
Methods: During the period December 2000 - October 2005, 689 patients, 396 male (57.5%) and 293 female (42.5%), aged between 52 and 93, (median age 73.4) of which 287 (41.6%) >80 years, underwent aortic arch angiography before performing CAS. In our experience 124 patients (17.9%) had aortic arch type I, 457 (66.3%) had type II and 108 (15.7%) had type III. Bovine arch was present in 132 patients (19.1%). We used in all procedures the direct approach by guiding catheter 8 F to CCA, reserving coaxial technique only in the difficult case of catheter stabilization.
Results: In the arch type I we employed coaxial technique only in 7 cases (1%) due to CCA tortuosity. In arch type II, 53 patients (7.7%) required telescopic technique, in the remaining 108 patients with arch type III, we used in 87 (12.6%) cases a coaxial technique, and in 21 (3%) cases a serial stiffening method. In 4 patients of the last group we performed an omeral approach. In total we used coaxial method to support direct approach in 24.3% procedures. In 8 cases (1.2%) was impossible to stabilize the catheter in the CCA and consequently to perform the endovascular (conversion to surgery) procedure; all cases were type III arch with heavy calcifications and severe tortuosity. In 3 cases (0.4%) we had 2 embolization and 1 dissection in CCA approach without cerebral sequelae.
Conclusion: The intraoperative consideration of anatomical characteristics may help provide better risk assessment in candidates for CAS. The technical analysis allows the selection of appropriate cases and equipment of wires and catheters to perform a safe procedure. Our results demonstrate that the direct approach by guiding catheter is safe and suitable in relation to different age-related anatomical complexity.

V06 - 3

ENDOVASCULAR TREATMENT VS OPEN OPERATIONS FOR ATHEROSCLEROTIC STENOSES OF THE BRACHIOCEPHALIC TRUNK

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Objective: Our aim was to carry out a retrospective comparison of the long-term results of open and endovascular interventions for atherosclerotic stenoses of the braohiocephalic trunk (BCT).
Methods: Fifty-two patients with BCT stenoses underwent 20 consecutive intrathoracic reconstructions and 32 balloon angioplasties. The long-term results of open interventions were followed up for a mean of 70+17 months (up to 169 months maximally). The long-term results of balloon angioplasties were followed up for a mean of 68+8 months (up to 117 months maximally). In a subgroup of patients who underwent intrathoracic operations, we studied the long-term results of 14 (74%) of the 19 patients whereas in a subgroup provided dilatations, we examined the long-term results of 23 (79%) of the 29 patients.
Results: Graft patency was preserved in 93% of patients, that of the dilated arteries in 96%. The incidence of strokes in the long-term period in the subgroups provided open reconstructions and endovascular interventions was 7% and 4%.
Conclusion: Endovascular intervention is the method of choice in the treatment for atherosclerotic stenoses of the BCT.

V06 - 4

CAROTID STENTING AND TRANSCRANIAL DOPPLER MONITORING (DTC): OUR EXPERIENCE

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Objective: The aim of the study was to assess the role of Transcranial Doppler (TCD) in detecting the embolic events during carotid angioplasty and/or stenting and to identify which steps of this procedure are at higher risk in mobilizing debris from the atherosclerothic plaque that could develop brain damage.
Methods: From January 1999 to September 2005, eighty-four patients, mean age 69 years, were submitted to endovascular treatment of carotid stenosis: 63 (75.0%) were asymptomatic and 21 (25.0%) symptomatic. In 65 cases (77.4%) the ICA lesions was primitive while in the remaining 19 (22.6%) a restenosis was present. In 61 cases (72.6%), a primary stenting of the ICA was performed; 18 patients (21.4%) were submitted to a predilatation followed by stent deployement and in other 4 (4.8%) a simple angioplasty was carried out. In the last patient (1.2%) the procedure was stopped after selective carotid angiography due to the onset of controlateral iposthenia of the superior arm and worsening confusion. All the carotid stenosis were haemodinamically significative as assessed by Duplex scanning; all the treated plaques were smooth and mainly fibrous with low morphologic embolic aspects. Before the procedure, a TCD monitoring was performed under basal conditions (at least 20–30 min) and digital compression of common carotid artery was performed to detect micromembolic signals and to evaluate the cerebral haemodynamic tolerance. In all treated patients a TCD monitoring was maintained for 30 min after the procedure. A spiral-CT scan or MR angiography was performed also in 73 cases (86.9%) to evaluate the cerebral vessels origin and calcification.

Results: Two main neurological complications: a TIA during the selective catheterization of the CCA with TCD detection of only bubbles signals and a controlateral RIND occurred at the end of the procedure related to particulate microemboli in rapid succession. The mortality was nihil. In all patients TCD recorded bubbles signals during selective catheterization and angiography. In 96% of cases corpuscolate but isolated microemboli were detected during predilatation, positioning of the filter through the lesions, stent deployement and ballooning. All these MES were asymptomatic.
Conclusion: Despite the high incidence of MES during the procedure, the neurological complications are related to TCD detection of corpuscolate signals in rapid succession. Even if no reduction of the overall incidence rate of MES was observed, a decrease in the number of corpuscolate emboli were recorded when a cerebral protection was used.

V06 - 5

THE EVALUATION OF DYNAMICS OF ADEQUATE FUNCTIONING OF THE EXTRACRANIAL/INTRACRANIAL BYPASS SURGERY BY MEANS OF DUPLEX SCANNING AND TRANSCRANIAL DOPPLEROGRAPHY

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Objective: The problem of diagnostics and treatment of cerebrovascular diseases became particularly relevant in recent years due to the growth of incidence of these disorders. Surgical treatment of aortic arch branches occlusive disease is the most radical way of cerebrovascular insufficiency prophylaxis. Cerebral revascularization in patients with occlusion of the internal carotid artery became possible with the development of extracranial/intracranial bypass surgery. We would like to emphasize here aspects of hemodynamic efficacy of extracranial/intracranial bypass: the state of cerebral perfusion reserve, the change of anastomosis diameter, linear blood flow velocity and blood flow rate in the postoperative period. The aim of this study was to evaluate the increase in cerebral perfusion rate after extracranial/intracranial bypass surgery.
Methods: 28 patients with occlusion of internal carotid artery were studied after extracranial/intracranial bypass surgery in various time points from 3 months to 3 years after surgery. Only patients with hemodynamicly valuable extracranial/intracranial bypass(second type) were included in the studied group. Diagnosed decrease in cerebral reactivity in ipsilateral brain hemisphere to the occluded internal carotid artery was 0.9±0.32 cm/sec/1 mmHg CO2 what was considered as an indication for extracranial/intracranial bypass surgery. All patients were male, mean age was 57.1±4.2 years. Functional state of the extracranial/intracranial bypass was evaluated by means of duplex scanning with color duplex mapping mode on Vivid-3 GE Medical Systems device. Transcranial dopplerography was performed on Angiodin BIOSS device. Evaluation of cerebral perfusion reserve was performed on Capnocheck Plus, SIMS BCI Inc.
Results: In the first 7 days after surgery the following hemodynamic characteristics of the anastomosis were obtained: linear blood flow velocity was 16.7±3.1 cm/sec, diameter of the donor artery was 1.9±0.6 mm, blood flow rate was 28.6±12.4 ml/min. Analysis of the anastomosis characteristics in the late postoperative period showed constant growth of all parameters. The change of extracranial/intracranial bypass characteristics within a month was: mean linear blood flow velocity increase was 3.2 cm/sec, mean diameter of the donor artery increase was 0.1 mm and mean blood flow rate increase was 17.6 ml/min.
Conclusion: Functioning extracranial/intracranial bypass has a strong tendency towards the increase of its role in the whole structure of cerebral collateral blood circulation.

V06 - 6

IMPROVING THE CARE OF PATIENTS UNDERGOING CAROTID ENDARTERECTOMY WITH A MODIFIED SURGICAL AND ANESTHESIOLOGICAL STRATEGY

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Objective: The aim of this study was to evaluate the safety and effectiveness of a modified surgical and anaesthesiological protocol consisting of early distal clamping of internal carotid artery and local anaesthesia in improving the results of carotid endarterectomy
Methods: An analysis of a prospectively compiled database concerning all CEAs (3153) carried out at our Institution between 1996 and June 2005 was performed. Until April 1999, all the interventions were performed under general anaesthesia, with SEPs monitoring and selective shunt insertion, with a standard surgical approach to carotid bifurcation and selective patch closure (Group 1; 1090 interventions). From May 1999 to December 2003, we used a modified surgical approach, consisting of preliminary isolation and clamping of distal ICA, still under general anaesthesia, with a policy of wide use of patch (Group 2; 1474 interventions). Since January 2004, we have been using routine local anaesthesia with the described modified surgical technique(Group 3; 589 interventions). Early and long-term results were collected and compared in the three groups.
Results: In group 3 there was an higher percentage of asymptomatic patients (70%) than in groups 1 and 2 (58.2% and 63.1%, respectively; $P<0.001$). In group 2 and 3 there was an higher percentage of patch closure (78.7% and 88.1%, respectively) than in group 1 (50%; $P<0.001$). Neurological deficits at awake were reduced in group 3 (0.1%); in group 1 and 2 the corresponding figures were 1.8% and 0.4% ($P<0.001$). Thirty-day stroke and death rate was lower in group 3 (0.6%) than in group 1 and 2 (1.5% and 1.3%). Multivariate analysis showed the use of patch closure and local anaesthesia to significantly reduce 30-day stroke and death rate, while early distal clamping of ICA affected the rate of neurological deficit at awake. Mean duration of follow-up was 23 months. Estimated 24-months survival rates was better in group 2 (98.3%) and 3 (99.7%) than in group 1 (95.65; $P = 0.005$, log rank 15.2). There were no differences in terms of estimated 24 months absence of any ipsi- and contralateral neurological event and absence of ipsilateral stroke.
Conclusion: From our data it appears that the adoption of a multifactorial intraoperative prophylaxis of early postoperative events allowed us to significantly improve early results of CEA, with a fall of complications rate largely below recommended standards. In this period of large diffusion and popularity of alternative methods to treat internal carotid artery stenosis, a comparison with these results is mandatory.

V06 - 7

CAROTID BODY PARAGANGLIOMAS: OUR EXPERIENCE

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Objective: The carotid body tumour is a rare neoplasm that has generated much literature over the last century, and for which continued controversy exists regarding natural history, biologic behavior, proper technique of excision, and the risk of morbidity & mortality. The present study reviewed a 12 years experience of managing carotid body paraganglioma (CBP) and analyzed clinical findings associated with peri-operative morbidity.
Methods: Clinical records, radiological findings and pathological reports of all patients who presented with CBP between 2002 and 2004 were reviewed. There were 10 consecutive patients aged between 18 and 42 yrs with tumors and median follow-up was 10 years.
Results: Preoperative information derived from spiral CT scanning, magnetic resonance imaging (MRI) and colour Doppler imaging (CDI) was comparable to that from standard four-vessel digital subtraction arteriography. In 5 patients the tumor excision was attempted before they were referred to our tertiary care hospital. 2 patients had bilateral tumors. The median duration of operation and blood loss was substantially higher in tumors, which were operated earlier in the other hospitals due excessive adhesions. Four patients had preoperative embolization and blood loss was minimal and excision relatively easier in them. Neurological complications were secondary to injury to the nerve supply to the pharyngeal muscles. There was difficulty in deglutition (nasal and laryngeal regurgitation) in 3 patients with large tumors and that required nasogastric tube feeding for (1 to 3 weeks).
Conclusion: Surgical planning and prediction of peri-operative complications can be obtained by digital subtraction angiography, spiral CT angiography and colour doppler imaging. The peri-operative blood loss can be reduced by pre operative embolization.

14.30-16.00
MAY 13, 2006 3RD CONGRESS DAY

7TH CARDIAC SCIENTIFIC SESSION
CORONARY

C07 - 1

CORONARY AND INTERNAL MAMMARY ARTERY REVERSIBLE OCCLUSION WITH THE NEW GEL POLOXAMER 407 DURING OPCAB PRESERVES THE ENDOTHELIAL FUNCTION

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Objective: To avoid bleeding during OPCAB, numerous hemostatic devices such as intracoronary shunt, vessel loop, gas insufflation are used and can cause an endothelial dysfunction as well as suboptimal hemostasis. The purpose of this study was to assess the efficacy of the novel reversible thermosensitive gel poloxamer 407 (P407, soluble in aqueous solution at low temperature and transforms gelation behaviour at body temperature) on vessel occlusions and its impact on the endothelial function in a porcine model of OPCAB.
Methods: Domestic swine (n = 7) were submitted to left anterior descending (LAD) or right coronary (RC) and internal mammary arteries (left [LIMA] and right [RIMA]) occlusion using P407. The LIMA were used as graft to perform LAD (n = 5) bypasses on beating heart and RIMA to RC (n = 2), followed by three hours of reperfusion. The vascular reactivity of epicardial coronary artery was evaluated in response to serotonin (Gi-protein mediated pathway) and bradykinin (Gq-protein mediated pathway). Histological studies were performed to analyze cardiomyocyte necrosis and endothelial coverage assessed by silver nitrate staining.
Results: The first injection of P407 led to a successful coronary occlusion of a mean duration of 8.3±2.1 min and a second injection has been necessary in 4 cases. The anastomosis time was 11.3±1.8 min, and ice was necessary to dissolve the gel in the mammary artery in all cases. Concentration-response curves of rings from occluded LAD and RC segments showed no significant differences of endothelium-dependent relaxations mediated by Gi and Gq protein pathways (p>0.05 for both agonists vs. controls). Histological studies demonstrated the absence of cardiomyocyte necrosis following coronary artery occlusion with P407 and preservation of the endothelial layer coverage.
Conclusion: Use of Poloxamer 407 is a safe and efficacious technique for temporary hemostasis at the site of anastomosis during construction of bypasses during beating heart coronary artery surgery, without damaging the surrounding endothelium.

C07 - 2

TOTALLY ENDOSCOPIC DOUBLE CORONARY ARTERY BYPASS GRAFTING ON THE ARRESTED HEART USING THE DA VINCI TELEMANIPULATION SYSTEM

Schachner T., Bonaros N., Oehlinger A., Ruetzler E., Feuchtner G., Laufer G., Bonatti J.
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Objective: Totally endoscopic coronary bypass grafting (TECAB) was limited to single bypass operations in the majority of cases so far. Development of multivessel TECAB is an important step in robotically assisted coronary surgery.
Methods: Between October 2001 and October 2005 63 patients underwent AHTECAB using the da Vinci telemanipulator and femoral access CPB (ESTECH). 4/63 patients, 2 male and 2 female, aged 59 (53-67) years, received double coronary bypass grafting (LIMA to OM and RIMA to LAD). The Octopus TE endostabilizer was used to expose the obtuse marginal branch on the arrested heart.
Results: In the 4 patients double vessel AHTECAB was technically feasible with a mean operation duration of 476 (406-509) minutes. LIMA preparation took 40 (29-49) min, RIMA preparation 41 (35-45) min. Suturing of all anastomoses was performed without major problems, where the LAD anastomosis time was 38 (18-53) min and the OM anastomosis time was 44 (28-70) min.
Conclusion: Double vessel AHTECAB is technically feasible. Operative times are at present long, requiring careful patient selection.

C07 - 3

PROPHYLACTIC DIALYSIS IN ELDERLY PATIENTS UNDERGOING CORONARY BYPASS SURGERY

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Objective: Renal dysfunction is associated with markedly increased risk for both mortality and morbidity in patients undergoing coronary artery bypass surgery especially in elderly patients. We aimed to determine the impact of prophylactic perioperative hemodialysis on operative outcome in patients with mild renal dysfunction.
Methods: Between March 2002 and May 2005 a total of 64 patients over 70 years of age and with preoperative creatinine levels greater than 2 mg/dL, underwent primary elective coronary artery bypass grafting (CABG) by using cardiopulmonary bypass (CPB) in our clinic. None of our patients was requiring dialysis. Forty-five patients were male and 19 were female with a mean age of 76.3±6.4 (range 70-83). The patients were prospectively allocated into two groups. Group A was the dialysis group (31 patients) and preoperative prophylactic hemodialysis was performed in all patients. Group B (33 patients) was taken as a control group without preoperative hemodialysis.
Results: There were no significant differences in preoperative and operative variables between the groups. In dialysis group(Group A) the mean levels of creatinine, BUN and potassium were found to be significantly decreased after three times of dialysis when compared with the control group in the operation day.(2.9±0.5 mg/dL vs. 1.8±0.7 mg/dL for creatinine, P = 0.0001; 58.2±18.7 mg/dL vs. 33.±14.4 mg/dL for BUN, P = 0.0001; and 4.98±0.3 mEq/L vs. 3.91±0.3 mEq/L for potassium, P = 0.0001). In the postoperative period mean levels of creatinine, BUN and potassium were also found to be significantly decreased in dialysis group. (2.3±0.8 mg/dL vs. 3.4±0.2 mg/dL for creatinine, P = 0.037; 41.6±17.5 mg/dL vs. 62.3±14.4 mg/dL for BUN, P = 0.012; and 4.1±0.2 mEq/L vs. 4.94±0.6 mEq/L for potassium, P = 0.043). The incidence of acute renal failure was found to be significantly increased in group B (P = 0.032). Ten patients died in the hospital with an overall 30-day mortality of 15.6%. The in-hospital mortality rates for patients in the dialysis group and control group were 3 (9.6%) and 7 (21.2%), respectively (P = 0.0021). The incidence of morbidity, intensive care and hospital stay time were found to be significantly decreased in dialysis group when compared with control group.
Conclusion: Preoperative renal dysfunction increases the risk of mortality and morbidity after onpump coronary artery bypass surgery. Advanced age is also associated with decreased physiologic reserve and increased comorbid factors. Perioperative prophylactic hemodialysis decreases both operative mortality and morbidity in elderly patients.

C07 - 4

CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH PREOPERATIVE RENAL INSUFFICIENCY WITH OR WITHOUT CARDIOPULMONARY BYPASS

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Deprtment of cardiovascular surgery Dijon University Hospital, DIJON, France; Department of anesthesiology Dijon University Hospital, DIJON, France

Objective: The use of cardiopulmonary bypass(CPB) influences the renal function and could result in renal failure following coronary artery bypass grafting with CPB (CABG) in patients with preexistent renal dysfunction. In addition the patients with renal dysfunction carry a risk of arterial atherosclerosis (coronary arteries and aorta) and present a high risk of mortality and morbidity after surgery. The aim of this study was to analyze the potential benefits of off-pump coronary bypass (OPCAB) for patients with renal insufficiency or on chronic hemodialysis.
Methods: From January 1996 through December 2001, the data of 1993 consecutive patients undergoing isolated coronary artery bypass grafting were prospectively entered into a data base(onpump1680 patients ; off-pump 313 patients). Eighty nine patients (46 on-pump, 43 off-pump) who presented a chronic renal insufficiency (serum creatinine ^{3} 200µmol/l) or were on chronic hemodialysis were studied.
Results: Preoperative characteristics were similar between the groups except for the Parsonnet score, sex and frequency of unstable angina pectoris (23.6±8.35 for off-pump vs. 14.7±5 on-pump P<0.00005, 27% (12F/31M) for off-pump vs. 8.6% (4F/42M) for on-pump P<0.05 and 58% (25/43) for off-pump vs. 32%(15/46) for on-pump P<0.05 respectively). Number of

graft was significantly higher in on-pump patients (2.93±0.8 for on pump vs. 2.2±0.65 for off-pump $P<0.0005$). The mortality was significantly higher in on-pump patients (15.2% for on-pump vs. 0% for off-pump patients $P< 0.005$). The number of patient with non-dialysis dependent renal dysfunction who required renal dialysis was higher in on-pump patients.($P<0.05$).
Conclusion: This study suggests that off-pump coronary artery bypass operations reduce mortality in patients with renal dysfunction (despite the fact that the off-pump patients had a higher adjusted mortality rate). The likelihood of acute renal failure in patients with preoperative nondialysis dependent renal insufficiency undergoing myocardial revascularization is also decreased.

C07 - 5

TEN YEARS OF RADIAL ARTERIAL GRAFTING: A RETROSPECTIVE VIEW

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Objective: To evaluate the results of the radial artery used as a second coronary graft to achieve arterial revascularization in a ten-year period.
Methods: From August 1996 to December 2005 radial artery was employed as a coronary graft in 424 patients. The mean Euroscore was 4.0±3.1 and the expected mortality 4.8±1.1%. Mean age was 68.9±8.4 years. There was left main disease in 35.0%, unstable angina in 66.6%, previous AMI in 47.4%. Mean ejection fraction was 61.5±12.6%. Radial arteries were harvested as skeletonized grafts in all cases; an antispasm prophylaxis with diltiazem administration was initially employed but it was later abandoned. A total of 543 distal anastomoses (48.2%) were constructed with 454 radial arteries. The mean of distal anastomoses per patient was 2.6±0.6, being 1.2±0.5 of radial artery. Of these distal anastomoses 277 (51.0%) were constructed on the lateral wall, 190 (34.9%) on the inferior wall and 76 (13.9%) on the anterior wall of the left ventricle. Therefore, the left internal mammary artery was used as a graft in 413 cases, the right internal mammary artery in 50, the right inferior epigastric artery in 16 and the saphenous vein in 101. So the total number of distal anastomoses in this serie were 1123. OPCAB revascularization was performed in 56 cases (13.2%).
Results: Exclusive arterial revascularization was achieved in 83.4% (354 patients). Hospital-in and/or 30 day-mortality was 3.7% (16 patients). There was 2.5% of perioperative AMI. No major complications were found related to radial artery harvesting. The follow-up period was 7.373 patientsmonth. Thirty patients underwent radionuclide exercise test with tecnecium 22.4 months after the operation. Stress-induced defects were detected only in 2 cases (5%), which were reversible at rest in areas revascularizated with a radial artery graft.
Conclusion: The radial artery is an excellent conduit for myocardial revascularization that provides very good mid-term clinical results and few local complications and should it be considered as a true alternative to the right internal mammary for arterial graft revascularization.

C07 - 6

REOPERATIVE OFF-PUMP CORONARY ARTERY BYPASS GRAFTING: ANALYSIS OF EARLY AND LATE OUTCOME

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Objective: The purpose of this study was to evaluate early and late results of redo (RE) off-pump coronary artery bypass (OPCAB) grafting compared with those of first (FD) coronary artery bypass grafting.
Methods: From September 1996, to May 2003, 900 patients underwent isolated OPCAB surgery. Among them, 64 (7.1%) underwent a redo surgery. Peripheral vascular disease (P = 0.005) was more frequent in RE whereas Diabetes P = 0.009) and triple vessel disease ($P<0.001$) were in FD group. Number of grafts/territory were also less in the RE group ($P<0.001$).
Results: Operative (30 days) mortality was similar, FD: 1.1% and RE: 1.6%. However perioperative MI (P = 0.001) and incomplete revasccularization (P = 0.006) were more frequent in RE group. Creatine kinase myocardial band release were similar in both group. Length of intensive care unit stay (P = 0.03), hospital stay (P = 0.004) and intubation time (P = 0.003) were longer in RE patients. Nine years survival was survival, freedom or reintervention, and freedom of cardiac related complications were similar in both groups.
Conclusion: Off-pump redo surgery in our series performed similarly to first time OPCAB with a comparable operative mortality and comparable long-term outcome.

C07 - 7

CORONARY REVASCULARIZATION USING THE "?" CIRCUIT IN OPCAB PROCEDURE: EARLY AND MIDTERM RESULTS IN 1401 CASES

Prapas N.S.
Henry Dunant Hospital, Athens, Greece

Objective: To assess early and midterm results in patients undergoing off-pump coronary artery by pass technique (OPCAB), using the "?" circuit.
Methods: Between February 2001 and November 2005, 1476 patients underwent isolated CAB in our institution, by the same surgical team. Amongst 1476 patients, 1401 patients (85.4% male, 14.6 female, mean±SD age 64.79±9.86) underwent isolated OPCAB surgery, with aorta non-touch technique, IMA's skeletonisation and a variety of composite grafts in order to achieve complete arterial revascularisation. Left ventricular performance was assessed pre-operatively by a detailed transthoracic echocardiogram. Comorbidities, as well as coronary artery risk factore were recorded preoperatively.
Results: Preoperatively IABP was inserted to 35 haemodinamicaly unstable pts (2.5%). In 853 patients (60.9%) we bypassed more than two diseased coronaries (3-6 distal anastomoses). Mean number of distal anastomoses was 2.75?0.93/pt. Of them, 2.59±0.98 were arterial grafts. All pts but 4 patients (0.3%), received at least one mammary artery. In 1217 cases (86.9%), bilateral mammaries was used. All mammary arteries were harvested in skeletonized fashion. Composite grafts on LIMA were performed on 839 cases (59.9%), with a mean of 1.75±0.79 grafts on LIMA. RIMA to LAD was performed in 407 cases (29.1%) whereas in 426 (30.4%) cases we performed sequential anastomoses. In 22 cases (1.6%), we didn't revascularize the anterior wall. Mean number of grafts/wall/pt: anterior 1.32±0.56, lateral 1.0±0.62, inferior 0.50±0.50. Early postoperative complications were analyzed: acute renal failure 2.1%, pulmonary complications 6.2%, SWI 1.0%, arrhytmias 20, 2% (19.9% atrial fibrillation, 0.3% ventricular fibrillation). Postoperative use of IABP: 22 cases (1.6%). Urine retention, G.I. and psycological complications 0.6%, 2.7%, 0.6% respectively. Overall hospital mortality (all high risk subgroups included): 21 pts (1.5%). The follow up lasts 1- 60 months. 32 pts underwent coronary angiography due to reccurence of the angina (2.3%). Of them, 15 patients (1.1%) required additional PTCA in a mean time of 24±4 months after the OPCAB. 2 patients reoperated at 18 and 21 months respectively, after the OPCAB, due to graft failure.
Conclusion: The low rate of postoperative complications, the ability to perform the method in all subgroups of the population, even in the high risk, regardless of the clinical and the angiographic status, and the excellent midterm results indicate that OPCAB with aorta non touch technique can be the method of choice for myocardial revascularization.

C07 - 8

IS TRANSMYOCARDIAL LASER REVASCULARIZATION OF BENEFIT FOR PATIENTS WITH END-STAGE CORONARY ARTERY DISEASE?

Bokeria A.L., Berishvili I.I., Sigaev U.I., Aslanidi P.I., Vakhromeeva N.M., Starostin V.M.
Bacoulev Cardiovascular scientific center, Moscow, Russian Federation

Objective: transmyocardial revascularization (TMR) using a high- energy CO2 laser has emerged as an alternative therapeutic option for patients with severe diffuse coronary artery disease refractory to conventional modes of therapy. However, this treatment remains controversial and long - term outcomes of this approach are largely unknown. We present the results of 360 TMR operations- a single centre experiense.
Methods: from April 1997 to December 2004 420 patients underwent TMR. Isolated TMR performed in 120 patients, 300 patients underwent combined CABG with TMR. In 80 cases TMR was used in combination with CABG on a beating heart. TMR was performed in combination with application of human gene VEGF165 in 38 cases, aECGF- in 20 cases.
Results: overal hospital mortality was -1.9%, on the last 350 cases there was 2 hospital deaths (0.6%). There was no hospital mortality on the last 250 operations and 6 late deaths. Overall mortality rate was 3.1%. Actuarial survival of 7-years follow - up was 95.4%. Freedom from major cardiac events was 93.1%. That was associated with increased exercise tolerance, reduced (significantly) angina scores and improved quality of life. Postoperative tallium scan controls (SPECT) after lasing demonstrated significant impovement in stress- induced ishemia in majority of patients. PET study revealed restoration of segments with hibernating myocardium.
Conclusion: TMR created with CO2 laser is safe and effective procedure. In stable patients with <<no option>> CCS grade III-IV angina TMR can significantly reduce the grade of angina. At 7-year follow -up in patients with CAD that precluded conventional modes of therapy TMR showed significant functional improvement as well as improvement of quality of life.

14.30-16.00
MAY 13, 2006 3RD CONGRESS DAY

8TH CARDIAC SCIENTIFIC SESSION
GENERAL

C08 - 1
MULTIMEDIA DRIVEN TEACHING SIGNIFICANTLY IMPROVES STUDENTS PERFORMANCE DURING AORTIC VALVE REPLACEMENT IN A PROSPECTIVE RANDOMISED TRIAL

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Objective: We developed a multimedia teaching course related to aortic valve replacement to prepare students as team members in heart surgery. It integrates hundreds of surgical video and audio sequences, interactive 2D and 3D models and images. It is internationally accessible at www.lamedica.de.
Methods: One hundred and twenty six students were randomly assigned in a prospective study to either use the multimedia course (n = 69) or a print version (*n* = 57) with identical content. A 20 items multiple-choice (MC) test was performed at the end. Both groups participated in an operation during which they were assessed with 28 standardised tasks and questions targeting towards a detailed understanding of the different surgical steps. To control for frequent confounders individual motivation and computer literacy were also evaluated.
Results: There were no significant differences in the MC pre test (multimedia 30.6%±12.4% vs. 27.9%±11.4%) and post-test (multimedia 76.7%±13.3% vs. print 76.9%±11.1). Mean percentage of successful tasks and correct answers during the operation was 83±4.5% in the online group and 65±4.7% in the text group (*P*<0.0001). The online group needed significantly less study time (105±24 min) than the text group (122±30 min), (*P*<0.001). On a range from 1 to 7 both groups were equally motivated (multimedia 4±1.2 vs. print 3.9±1) and had equal computer knowledge (multimedia 2.8±0.8 vs. 2.9±1 print).
Conclusion: When factual knowledge is to be imparted and tested, there is no difference between text-based teaching and multimedia. The latter proved be a more efficient in terms of study time. During heart operations, when understanding of complex temporal and spatial events is essential, students´ performance is significantly improved by multimedia enhanced teaching.

C08 - 2
AORTIC ROOT REPLACEMENT WITH MECHANICAL VALVED CONDUIT IN 447 CONSECUTIVE PATIENTS: SPECIAL FOCUS ON MARFAN PATIENTS

Pacini D., Bergonzini M., Camurri N., Claysset B., Botta L., Martin-Suarez S., Pilato E., Pastore S., Bozzetti G., Di Bartolomeo R.
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Objective: To evaluate long term results on aortic root replacement with mechanical valved conduit, with a particolar focus on Marfan patients.
Methods: We retrospectively evaluated 447 consecutive patients who underwent aortic root replacement with mechanical valved conduits in our Institute. Their mean age was 54.3±13.8 years, and there were 356 male (79.6%). Two-hundred twenty-one patients (49.4%) were in NYHA class III/IV. Type A Aortic Dissection accounted for 9.4% (42 patients), whereas a post-dissection aneurysm was present in 39 patients (8.7%). Marfan syndrome was diagnosed in 48 patients (10.7%) and bicuspid aortic valve in 73 patients (16.3%). Fifty-seven patients (12.8%) were operated on emergency/urgency criteria. Aortic arch replacement was performed in 56 patients (12.5%).
Results: Thirty-day mortality and morbidity accounted for 32 (7.2%) and 110 (24.6%) patients respectively. Overall survival estimates at 1, 5, 10, 15 and 20 years were 90.1%±1.4, 81.4%±2.1, 63%±3.7, 43.6%±5 and 22.8%±6.2, respectively. Overall survival estimates for Marfan patients did not differ significantly from the non-Marfan population (log-rank = 0.907). In the non-Marfan population freedom from aortic reintervention at 1, 5, 10, 15 and 20 years was 99.3%±0.5, 99%±0.6, 94.4%±2.4, 90.7%±3.4 and 90.7%±3.4 respectively. In the Marfan population freedom from aortic reintervention at 1, 5, 10, 15 and 20 years was 100%, 96.3%±3.6, 77.5%±11.1, 46.5%±18.2 and 0% respectively (log-rank: 0.000).
Conclusion: In our series the replacement of the aortic root with the Bentall technique and its modifications resulted to be a reliable procedure, with low hospital mortality rates despite the complexity and the extension of the aortic pathology. Marfan patients survival estimates did not differ significantly from the non-Marfan population, again confirming the appropriacy of this surgical option to that disease. High aortic reoperation rate in the Marfan population should strongly encourage to perform surgical intervention as radical as possible, in order to minimize the risk of a new procedure.

C08 - 3
13 YEARS MEDIAN FOLLOW UP OF BRAVO 400 STENTLESS AORTIC VALVE BIOPROSTHESIS

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Department of Cardiovascular Surgery, University of Milan, Centro Cardiologico Monzino, Milan, Italy

Objective: The BRAVO Cardiovascular Model 400 Stentless is an entire porcine aortic root characterized by low pressure fixation (< 2 mmHg in 0.35% glutaraldehyde), valve inflow portion reinforcement with zero pressure fixed equine pericardium, absence of synthetic materials, coronary arteries ligation and long aortic root (4-5 cm). This report evaluates 13 years median follow-up of patients who underwent aortic valve replacement with the BRAVO 400 Xenograft.
Methods: Between February 1992 and January 1994, 67 patients (37 male and 30 female, mean age 67.9 ±7.2 years, age range 22-83 years) underwent aortic valve replacement with Bravo Model 400 stentless porcine bioprosthesis at Centro Cardiologico Monzino, University of Milan. The mean aortic cross-clamp time was 95*20 min and the mean duration of cardiopulmonary bypass was 115*26 min. Survival and time-related event analysis was performed with the Kaplan-Meier method.
Results: We did not observe perioperative and in-hospital mortality and morbidity. The actuarial freedom from valve-related death at 13 years was 86.87%?4.67%. The actuarial freedom from cardiac-related death at 13 years was 83.93%?4.95%. The actuarial freedom from non-cardiac death at 13 years was 59.21%?4.21%. The first cause of death in this sub-group was tumor. 13-year Kaplan-Meier survival of patients younger than 65 years at surgery was 80.81%?8.66% vs. 51.74%?7.70% for older patients (*P* = 0.0688, Log Rank Test). Freedom from valve-related death and from cardiac related death was not significantly different between patients younger and older than 65 years at surgery (*P* = 0.8364 and *P* = 0.6593 respectively, Log Rank Test). Freedom from non-cardiac deaths was significantly better in patients younger than 65 years at surgery (*P* = 0.0231, Log Rank Test). The actuarial freedom from thromboembolism at 13 years was 90.72%?3.97% respectively. No hemorrhagic events were registered in follow-up. Prosthesis replacement was necessary in 6 patients for degeneration of the prosthesis. The actuarial freedom from reoperation at 13 years was 88.26%?4.53%. The rest of our study group showed at echocardiographic control a good haemodynamic performance of the stentless prosthesis.
Conclusion: The Bravo 400 aortic prosthesis has provided good clinical and hemodynamic results up to 13-year follow-up.

C08 - 4
INITIAL EXPERIENCE OF COMBINED APPROACH FOR THE TREATMENT OF THE END STAGE OF ISCHEMIC CARDIOMYOPATHY

Prapas S., Protogeros D., Danou F., Panagiotopoulos I., Kotsis V., Linardakis I., Trika C., Chandrinou H.
Henry Dynant Hospital, Athens, Greece

Objective: To evaluate the safety and efficacy of combined treatment for ischemic cardiomyopathy, consisting of 1) revascularization of ischemic areas off - pump 2) external reshaping of the left ventricle in order to restore LV geometry and 3) autologous stem cell injection into the myocardium.
Methods: Between July and October 2005, 5 patients (mean age 59.1 years) underwent coronary bypass using the circuit technique and external reshaping of the left ventricle under offpump conditions. Autologous bone marrow (300ml) was obtained by bilateral posterior iliac bone aspiration at the time of surgery. Bone marrow mononuclear cells were isolated by means of a density Ficoll - Paque gradient. Then the cells were exhaustively washed and re-suspended in a normal saline solution containing 5% human serum albumin. Cell count, viability and cultures were appropriately performed. Following the operation the bone marrow mononuclear cells (30ml) were injected directly to the myocardium of the left ventricle. Preop IABP was used in all patients.
Results: No significant complications were observed. The left ventricular ejection fraction at rest was improved significantly in all patients from 20.2±5

to 29.6±4, three months following the operation. Furthermore, we observed significant reduction of the end diastolic volume of the left ventricle and improvement of motions in all walls. In a follow up period of 3-6 months all patients are alive and the benefit of the operation is maintained.
Conclusion: The combination of off-pump myocardial revascularization, reshaping of the left ventricle and injection of un-manipulated autologous bone marrow into scar tissue of the human heart is safe and effective in enhancing cardiac function in ischemic cardiomyopathy.

C08 - 5
SURGICAL MANAGEMENT OF INFECTIVE ACUTE AORTIC ENDOCARDITIS: LONG TERM RESULTS
Glineur D., Noirhomme P., Rubay j., Poncelet A., El Khoury G.
Clinique Universitaire St Luc, Brussels, Belgium

Objective: The goal of this study was to assess long term results of surgically treated infective acute aortic endocarditis (IAE) and to compare the different surgical approaches to treatment.
Methods: Between January 1990 and January 2003, 126 patients with IAE underwent aortic valve surgery. We divided our cohort into 3 groups: group I had prosthetic valve replacement (61 patients: 44 mechanical; 19 biological), group II had homo-autograft replacement (50 patients: 38 homograft; 12 allograft), and group III had valve repair (13 patients). The mean age was 56±16 years. Twenty six patients had prosthetic aortic valve endocarditis. Hospital mortality was 13%. Mean follow-up time was 61±42 months. Four patients developed late endocarditis.
Results: There were no differences between the 3 groups in terms of preoperative variables, indications for surgery, or hospital mortality, except for the incidence of heart failure which was more frequent in group I. The five year survival, freedom from valve related events, and occurrence of cardiac related events for groups I, II, and III respectively were as follows: five year survival (81±13% vs. 94±6% vs. 100%; $P = 0.54$); freedom from valve related events (67±17% vs. 90±10% vs. 91±10%; $P = 0027$), and occurrence of cardiac related events (61±16% vs. 90±10% vs. 76±24%; $P = 0.013$).
Conclusion: In this patient population, homograft and Ross procedures gave better long term results in terms of valve and cardiac related events

C08 - 6
CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH ACUTE CORONARY SYNDROME
Schneider A.Y., Kouznetsov V.C., Krasikov V.A., Kuksinsky E.V., Lesbekov D T., Klimov V.E., Kazakova B.I.
Medical Academy of Postgraduate Studies, Saint-Petersburg, Russian Federation

Objective: The objective is to present our experience of CABG in patients with acute coronary syndrome
Methods: From October 2000 till November 2005 528 isolated CABG procedures were performed. 80 (15.2%) patients had acute coronary syndrome manifestations (2nd group). The control group consists of other 448 (84.8%) patients (1st group). Mean age was 53.6 and 54.2 years old. 85.1% and 87.5% (p>0.05) of the patients were of male gender in both groups. Second class angina was in 23.6% and 25,0% ($P<0.05$) of the patients, third class - in 46.1% and 51.6% ($P<0.05$) and fourth class - ? in 16.4% and 18.8% ($P<0.05$). Moderate left ventricular disfunction (30-50%) observed in 33.4% and 36.3% ($P<0.05$) of the patients. Severe disfunction was 5.1% and 6.3% ($P<0.05$) of the patients. First degree pulmonary hypertension was in 16.7% and 18.8% ($P<0.05$) of the patients and second degree - in 4.1% and 7.5% ($P<0.05$) of the patients. Mean number of distal anastomoses was 2.6 and 2.9 per patient in both groups. 275 (61.4%) and 46 (57.5%) ($P<0.05$) procedures were made off-pump. 197 (44,0%) and 27 (33.8%) ($P<0.05$) procedures were made using only autoarterial grafts. T-grafting (internal mammary artery + radial artery) was used in 107 (24,0%) and 18 (22.5%) (p>0.05). Sequential grafting was used in 211 (47.1%) and 39 (48.8%) (p>0.05). Logistic EuroSCORE variated from 0.88% ?? 11.2% in first group and from 1.54% to 14.3%. Mean logistic EuroSCORE was 2.6% and 3.8% ($P<0.05$).
Results: Perioperative myocardial infarction registered in 4.1% and 7.5% ($P<0.05$). Conversion from off-pump to on-pump due to haemodynamic instability took place in 8 (1.8%) and in 3 (3.8%) ($P<0.05$) of the cases. Mean intensive care unit stay was 1.8 and 2.1 days ($P<0.05$). Hospital mortality in both groups was 5 (1.1%) and 0 (0%). Angina reccurence was observed in 9 (5.5%) from 162 investigated patients from the first group and 3 (3.8%) in the second group ($P>0.05$).
Conclusion: Usage of modern surgical and anesthesiological techniques of ischemic heart disease treatment let to provide CABG in patients with clinical manifestations of acute coronary syndrome with the similar results as in patients with stable angina.

C08 - 7
CORONARY REVASCULARIZATION USING THE "?" CIRCUIT IN OPCAB PROCEDURE: EARLY AND MIDTERM RESULTS IN 1401 CASES
Prapas S., Panagiotopoulos I., Protogeros D., Linardakis I., Stratigi P., Danou F., Khouri E., Kotsis V.
Henry Dynant Hospital, Athens, Greece

Objective: To assess early and midterm results in patients undergoing off-pump coronary artery by pass technique (OPCAB), using the "?" circuit.
Methods: Between February 2001 and November 2005, 1476 patients underwent isolated CAB in our institution, by the same surgical team. Amongst 1476 patients, 1401 patients (85.4% male, 14.6 female, mean±SD age 64.79±9.86) underwent isolated OPCAB surgery, with aorta non-touch technique, IMA's skeletonisation and a variety of composite grafts in order to achieve complete arterial revascularisation. Left ventricular performance was assessed pre-operatively by a detailed transthoracic echocardiogram. Comorbidities, as well as coronary artery risk factore were recorded pre-operatively.
Results: Preoperatively IABP was inserted to 35 haemodinamicaly unstable pts (2.5%). In 853 patients (60.9%) we bypassed more than two diseased coronaries (3-6 distal anastomoses). Mean number of distal anastomoses was 2.75?0.93/pt. Of them, 2.59±0.98 were arterial grafts. All pts but 4 patients (0.3%), received at least one mammary artery. In 1217 cases (86.9%), bilateral mammaries was used. All mammary arteries were harvested in skeletonized fashion. Composite grafts on LIMA were performed on 839 cases (59.9%), with a mean of 1.75±0.79 grafts on LIMA. RIMA to LAD was performed in 407 cases (29.1%) whereas in 426 (30.4%) cases we performed sequential anastomoses. In 22 cases (1.6%), we didn't revascularize the anterior wall. Mean number of grafts/wall/pt: anterior 1.32±0.56, lateral 1.0±0.62, inferior 0.50±0.50. Early postoperative complications were analyzed: acute renal failure 2.1%, pulmonary complications 6.2%, SWI 1.0%, arrhytmias 20, 2% (19.9% atrial fibrillation, 0.3% ventricular fibrillation). Postoperative use of IABP: 22 cases (1.6%). Urine retention, G.I. and psycological complications 0.6%, 2.7%, 0.6% respectively. Overall hospital mortality (all high risk subgroups included): 21 pts (1.5%). The follow up lasts 1- 60 months. 32 pts underwent coronary angiography due to reccurence of the angina (2.3%). Of them, 15 patients (1.1%) required additional PTCA in a mean time of 24±4 months after the OPCAB. 2 patients reoperated at 18 and 21 months respectively, after the OPCAB, due to graft failure.
Conclusions: The low rate of postoperative complications, the ability to perform the method in all subgroups of the population, even in the high risk, regardless of the clinical and the angiographic status, and the excellent midterm results indicate that OPCAB with aorta non touch technique can be the method of choice for myocardial revascularization.

C08 - 8
LEUKODEPLETION IMPROVES RENAL FUNCTIONS IN PATIENTS WITH RENAL DYSFUNCTION AND UNDERGOING ON PUMP CORONARY BYPASS SURGERY: A PROSPECTIVE RANDOMIZED STUDY
Bolcal C., Akay Hakki T., Bingol H., Günay C., Doganci S., Kaya E., Emrecan B., Demirkilic U., Tatar H.
Gülhane Military Medical Academy, Ankara, Turkey

Objective: Renal dysfunction may occur after on-pump coronary revascularization due to various factors. Leukodepletion may improve renal functions after on pump coronary artery by-pass surgery (CABG) by reducing cardiopulmonary(CPB) bypass related inflammation. We aimed to show the impact of leukodepletion on renal functions in patients undergoing on-pump coronary revascularization.
Methods: Fifty patients awaiting elective on-pump coronary revascularization with normal preoperative cardiac functions and with plasma creatinine level ranging between 1.5 to 2.0 mg/dL, were prospectively randomized into those undergoing on-pump CABG with (group I: n = 20) or without leukodepletion (group B, n = 20). Renal glomerular and tubular injury were assessed by urinary alpha glutathione s-transferase (a-GST)levels, plasma creatinine and blood urea nitrogen levels.
Results: There were 14 female and 36 male with a mean age of 57.6±5.3. In both groups plasma creatinine levels were above 1.5 mg/dL in the

preoperative period. In leukodepletion group(Group A) the mean levels of creatinine, BUN and urinary a-GST were found to be decreased after leukodepletion when compared with the control group in the first, 3'rd and fifth postoperative days. There was no mortality. Three patients in the control group needed postoperative dialysis.
Conclusion: Patients with renal dysfunction and who underwent on-pump CABG surgery seems to benefit from leukodepletion to prevent tubular damage and renal impairment when compared with control group.

C08 - 9

TRANEXAMIC ACID ADMINISTRATION PRE AND POST CPB REDUCES POSTOPERATIVE BLEEDING. PROSPECTIVE RANDOMIZED, DOUBLE BLIND STUDY

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Objective: We know that fibrinolitic disbalance after cardiopulmonary bypass (CPB) can cause postoperative bleeding. To evaluate the tranexamic acid (TA) effect on cardiac postoperative bleeding, and transfussional needs.
Methods: Prospective, randomized, double blind, placebo controlled study, with 50 patients (27 male) under CPB, 64.5±1.4 years mean age, in which we compare TA administration (2 grs, iv, pre and post CPB) vs. a control group. We analyzed bleeding into 24 first hours, transfussional needs, and clinical and biochemical variations. Statistical studies were performed using Pearson's chi² test and Fisher's exact test were used. The Student's t test was performed in independent groups. And the Mann- Whitney U test in non parametric variables. To compare the sequential changes along the time we applied the Manova test.
Results: In the TA patients group bleeding was shorter than control group (492±387 ml vs. 1036±147 ml; p 0.001) as well as red cell transfussional needs (475±146 ml vs. 962±165 ml; p 0.021) and frozen plasma needs (33±33 ml vs. 409±144 ml ; p 0.012). The use of TA was associated with lower levels on CPK-NAC (p 0.004), CPK-MB (p 0.039) and D-Dimer (P<0.0005) on arrival to ICU. 4 h later, CPK-MB (p 0.042) and D- Dimer (P< 0.0005) still showed difference. In TA group a lesser incidence on vasodilator shock (p 0.003), noradrenaline needs (p 0.029) and mechanical ventilation time (p 0.018) were found.
Conclusion: The use of TA in patients under CPB reduce postoperative bleeding and hospital costs due to lower trasfussional requirements, morbidity a mechanical ventilation time.

C08 - 10

OFF PUMP OR MINIMAL EXTRACORPOREAL CIRCULATION? A COMPARATIVE STUDY

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Hospital De Navarra, Pamplona, Spain

Objective: Our aim was to compare our clinical results with the off-pump technique and minimal extracorporeal circulation (MECC) for surgical myocardial revascularization.
Methods: The study comprises 212 consecutive patients who were operated on for coronary revascularization. We divided the study into two groups. Group A comprised 106 patients who were operated on off-pump, and group B comprised the remaining 106, who were operated on under MECC. The groups were similar in terms of age, angina class, previous infarction, coronary lesions and ejection fraction (P = ns). Surgical results were evaluated in terms of the number of inserts done, bypass insert permeability, clinical outcomes and laboratory parameters. Permeability was measured by flow-meter intraoperatively and subsequently by color duplex ultrasound within one postoperative week. Data was analyzed with standard statistical methods.
Results: The mean number of vessels grafted was greater (on average 0.16 more grafts per patient) in group B (P = 0.03). Group B patients received more bypasses on the branches of circumflex (P = 0.02). Permeabilities were similar for both groups. Hospital mortality was two patients in group A and none in group B. There were no significant statistical differences in terms of postoperative low cardiac output, intraaortic balloon assistance, units of blood transfused, mean weaning time, mean duration of stay in the intensive care unit, atrial fibrillation or postoperative myocardial infarction (troponine levels). On admission to the ICU, oxygenation tended to be worse in group B patients (P<0.001) but within 18 h there was no difference between the groups. On ICU admission, hematocrit was similar for both groups but group B patients had less platelets (P<0.001) and less leukocytes (P = 0.005). We observed that group B patients required less drainage (P = 0.02).
Conclusion: Although MECC resulted in a small but real inflammatory response, this did not lead to any observable complications. We did not observe any cases of systemic inflammatory response syndrome (SIRS) and this may be due to the effectiveness of the bio-compatibility of the MECC circuit. The easier access and greater patient stability facilitated by MECC made surgery more comfortable and less stressful. Furthermore, easier access to the branches of the circumflex made it possible to do more inserts per patient. We believe MECC represents a better approach to coronary surgery than the off-pump technique.

14.30-16.00
MAY 13, 2006 3RD CONGRESS DAY

4TH CARDIOVASCULAR SCIENTIFIC SESSION

CV04 - 1

DESCENDING THORACIC AORTIC ANEURYSMS REPAIR: THE "QUICK SIMPLE CLAMPING" TECHNIQUE

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Policlinico di Monza, Monza, Italy; Centro Cardiologico Fondazione Monzino, Milano, Italy

Objective: Despite additional protective measures in order to reduce spinal cord injury (cardiopulmonary bypass with moderate or deep hypothermia, left heart by-pass, Bio-pump, aortic perfusion, drugs, cerebrospinal fluid drainage, intercostal artery reimplantation) have been achieved in the last decades, graft replacement of descending thoracic aorta continues to be attended by a high rate of paraplegia. In order to prevent spinal cord injury and to reduce mortality, in 1995 we developed a new surgical approach: the Quick Simple Clamping technique after intercostal arteries exclusion.
Methods: Since 1995, 192 consecutive patients (78% male, mean age 63.2 years) underwent Quick Simple Clamping (QSC) technique to repair descending thoracic aorta aneurysm (DTA). Aortic pathology included: atherosclerosis-degeneration (69%), chronic dissection (21%), chronic trauma (4%), pseudoaneurysm (2%), post-coarctation aneurysm (0.8%) and neoplastic pathology (2%). Under cerebrospinal fluid drainage (CFD) control, after isolation and interruption of every single intercostal arteries, aortic cross-clamping and aneurysm resection were performed. The mean aortic cross-clamping time was 17 + 3 min (range 11-24 min.). On the basis of anatomical, fluidodinamic and clinic findings, there is evidence that QSC technique: 1.avoids the back bleeding from the segmental arteries so reducing blood steal from the spinal cord and leaving a very cleaned operating field; 2.improves collateral network blood flow; 3.reduces aortic clamp time.
Results: In-hospital mortality rate was 4.6% (9/192): one patient died in the operative room for bleeding, two other patients at 20 and 30 days postoperatively by multiorgan failure. Paraplegia occurred in 1 patient (0.5%) caused by a T6-spinal cord compression due to hemostatic gauze put in the epidural space, while transient paraparesis affected 4 patients (2%). Postoperative acute renal failure requiring hemofiltration occurred in 5 patients (2.6%). Respiratory failure occurred in 5 patients (2.6%). Tree patients (1.6%) underwent re-exploration for bleeding, whereas one patient (0.5%) experienced acute leg ischemia treated by surgical embolectomy. Late follow-up data were available for 91% of patients. The mean follow-up time was 38 months (range 2-75), the 5 year survival rate (Kaplan-Meyer) was 78.9±12.8%.
Conclusion: Endovascular graft treatment of thoracic aorta diseases has reduced the incidence of paraplegia but it is not indicated in every patient. In those cases the simplified clamping technique permits to minimize ischemic time and to defeat the paraplegia.

CV04 - 2

ENDOVASCULAR REPAIR OF PROXIMAL ENDO-GRAFT INSTABILITY/ COLLAPSE AFTER TREATMENT FOR THORACIC AORTIC DISEASE

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Objective: Five cases of proximal endo-graft instability after endovascular treatment of thoracic aortic disease using the TAG Gore system are reported.
Methods: In these 5 cases (thoracic aneurysm after type B-dissection, traumatic blunt aortic rupture) an early proximal endo-graft instability occurred that has not been reported in previously used devices. In two cases this instability lead to a collapse of the proximal endograft with one side ot the graft towering into the aortic lumen, causing an almost complete aortic occlusion.
Results: In the first case a combined endovascular and open emergency procedure achieved a reopening of the stent by proximal extension of the proximal endograft with another TAG prosthesis. In the following cases a proximal extension was not considered due to a precise positioning of the endo-graft distal of the left carotid artery. Therefore, a balloon expanding PALMAZ Stent was placed interventionaly in the proximal part of the TAG Stent to expand the stent and to avoid another collapse of the device.
Conclusion: This proximal stent instability has to be acknowledged as a potentially hazardous complication. Therefore, we recommend to monitor closely the proximal part of thoracic endo-grafts in the aortic arch and offer two possible endovascular solutions for resolving the problem of proximal endo-graft instability or collapse.

CV04 - 3

EARLY AND MID-TERM RESULTS AFTER ENDOVASCULAR TREATMENT OF THE ATHEROSCLEROTIC DESCENDING THORACIC AORTIC ANEURYSM

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I Cattedra di Chirurgia Vascolare - Università degli Studi di Roma "La Sapienza", Rome, Italy; Dipartimento di Radiologia, Università degli Studi di Roma "La Sapienza", Rome, Italy

Objective: Endovascular repair of thoracic aortic aneurysms is a promising modality with reduced morbidity and mortality. Preliminary results suggest that endovascular therapy is an effective and possibly advantageous treatment for diseases of the descending thoracic aorta. The purpose of this prospective study was to evaluate perioperative and mid-term results of endovascular stent-graft treatment of atherosclerotic TAAs.
Methods: Between June 1999 and December 2004 53 consecutive patients underwent elective endovascular stent-grafting of the descending thoracic aorta. 31 pts, excluded from this study, were treated for type-B dissection and 22 (41.5%) were treated for atherosclerotic aneurysms. Devices used included Excluder (W.L.Gore and Associates) and Talent (Medtronic). Follow-up investigations (CT-scan) were performed at 1-month, 3-months, 6-months, 1-year and annually thereafter.
Results: Perioperative mortality rate was 4.5% (1/22). Primary technical success, defined as successful deployment and exclusion of the lesion without evidence of type I or III endoleak, was achieved in 19 (86.3%) of 22 patients. 2 perioperative type-I and 1 perioperative type-II endoleaks were observed. No ischemic complications (paraplegia, visceral or peripheral ischaemia) or open surgical conversion were recorded. We observed type-I endoleak in 1 patient at 6-months CT-scan and aortic distal growth in diameter in 1 patient at 18-months CT-scan. Mean floow-up was 34 months (range 12-71 months).
Conclusion: Elective endovascular therapy of atherosclerotic TAAs seems to be a feasible and safe procedure; strict tomographic examination is mandatory to valuate mid-term and long-term results.

CV04 - 4

THE EFFECT OF AORT COARCTATION REPAIR TO THE SYSTOLIC HYPERTENSION IN ADULTS PATIENTS

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Izmir Atatürk Education and Research Hospital, Department of Cardiovascular Surgery, Izmir, Turkey

Objective: The purpose of this retrospective study is to determine the effect of repair to the systolic hypertension and the results of repair of aortic coarctation in adults.
Methods: Eight adults patients underwent aortic coarctation surgical repair between 1990 and 2005. Mean age of the patients 28.5± years (range,18 to 41 years). There were 6 men and 2 women patients. All patients had hypertension preoperatively. Mean systolic blood pressure was 160.6± mmHg (range, 145 to 180 mmHg). 3 patients were receiving at least one antyhypertensive drug preoperatively. All patients were performed angiography, and echocardiography preoperatively. Mean peak systolic gradient across the coarctation was 63.3± mmHg (range, 40 to 80 mmHg). Surgical treatment were performed with bypass graft between proximal and distal descendan aort in four patients, bypass graft from the left subclavian artery to the descending aorta in three patients, patch aortoplasty in one patient. In none of the patients there was hospital mortality or late morbidity and mortality.
Results: Mean follow-up was 71.3± months (range, 18 to 192 months). There were no deaths. In a period between one and six monts after the surgical repair of aort coarctation, three patients were operated for associated cardiac diseases. Mitral valve replacement and tricuspit De Vega annuloplasty were performed in one patient. Mitral valve replacement was performed in other patient. Ventricular septal defect repair with patch and subaortic membran rezection were performed in another patient. At the last follow-up, only two patient was normotensive without receiving any hypertensive medication. Another 7 patients were normotensive with at least one antypypertensive medication (systolic blood pressure =140 mmHg, diastolic blood pressure =90 mmHG). Recoarctation hasn't been noticed in follow-up of the patients.

Conclusion: Surgical repair of aort coarctation in the adult has low-risk, and it is an effective method in decreasing the sistolic hypertension and lessens requirement of antihypertensive medications and clinical symptoms. Hypertension disease may not be solved after aort coarctation repair. Currently for explanation of this problem in moleculer level investigations continue all over the world.

CV04 - 5
HYBRID-PROCEDURE IN REPAIR OF THORACO-ABDOMINAL AORTIC ANEURYSM
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Objective: The conventional open repair of thoraco-abdominal aneurysms remains complex and demanding and is associated with significant morbidity and mortality, even though the use of adjuncts. The combined endovascular and open surgical approach with retrograde revascularisation of the visceral and renal vessels has been realized in order to minimize intraoperative and postoperative complications.
Methods: Within an experience of 205 aortic stent-grafts between 1998 and 2005, 3 of the patients with thoraco-abdominal aneurysms (Crawford type I, II, and III) were treated with a combined endovascular and open surgical approach. The procedures were electively conducted. Two men, 64 and 69 years old, and 1 woman, 61 years old (maximum aneurysm's diameter was 10, 8 and 9 cm, respectively) were operated with the combined method. The surgical approach was executed in all patients without thoracotomy or re-do retroperitoneal exposure. Revascularization of the renal and the superior mesenteric arteries was accomplished via transperitoneal bypass grafting, but after verifying the collateralisation of the celiac axis through the pancreaticoduodenal artery, the celiac axis was not revascularized. Aneurysmal exclusion was performed by stent-graft deployment.
Results: The entire procedure was technically successful in all patients. The patients were discharged 7, 10, and 21 days after the operation, while the postoperative studies revealed the patency of the vessels and no evidence of leak or secondary rupture of the aneurysm. During the follow up (1, 12, and 18 months) spiral-CT scanning revealed distinct shrinkage of the aneurysm, no graft migration or endoleak and patency of all revascularized vessels, exceptional one renal artery in patient 1 and 2. No patient experienced any temporary or permanent neurological deficit.
Conclusion: The combined endovascular and open surgical approach is feasible, without crossclamping of the aorta and with minimized ischemia time for renal and visceral arteries, and seems to be an appropriate strategy for patients with a thoraco-abdominal aortic aneurysm.

CV04 - 6
THE "HYBRID PROCEDURE" FOR THORACOABDOMINAL AORTIC ANEURYSMS REPAIR
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Objective: Repair of thoracoabdominal aortic aneurysms continues to be a challenging task. These patients usually have significantly co-morbidity and redo-surgery further compound the problem. Paraplegia and renal failure are the most devastating complications. The applicability of endovascular procedures to thoracoabdominal aorta has been limited by the origin of several visceral arteries. Combined endovascular and surgical visceral revascularization is a feasible and less-invasive approach for the management of this complex lesions.
Methods: Five patients (3 men, 2 women, mean age 64 years, range 21-79) were treated from May 2002 to November 2005 with combined endovascular stent-grafting of thoracoabdominal aorta and surgical visceral revascularization. Four patients have a history of previous aortic operations. Spiral CT and transesophageal echocardiography were performed in every patients (aortography in 3 patients). Open repair was deemed too difficult due to significant comorbidity in all patients and redosurgery in four patients.
Results: All procedures were performed under general anaesthesia, in vascular operative suite equipped with digital subtraction angiography and transesophageal echocardiography, via median xifo-pubic laparotomy. No intraoperative mortality or stent-graft related complication were observed. One patient with end-stage renal disease deceded in second postoperative day for multi-organ failure. Only one patient developed on the 3rd postoperative day an acute colecystitis follow by a colecistectomy. No perioperative paraplegia or visceral-graft complications were detected. After a mean follow up of 31 months (range 12 - 42 months), 3 patients are alive and serial spiral CT scan confirmed satisfactory placement of the aortic stentgraft.
Conclusion: The "hybrid procedure" allows treatment of patients whose co-morbidity or redo-surgery may have previously made them unsuitable for TAAA repair, and reduces the morbidity and mortality rates of these high-risk procedures. A meticulous follow up of the patients is mandatory because the long term performance remains to be elucidated. If the durability of this approach is confirmed, it may represent an attractive alternative in patients with aneurysmal involvement of the visceral segment of the aorta.

CV04 - 7
GLOBAL EXPERIENCE WITH EVAR FOR THORACIC AND ABDOMINAL AORTIC ANEURYSMS
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Objective: Despite improvements on perioperative care and surgical techniques conventional surgery still carries substantial risk of serious complications, mostly in emergency and in high risk patients. To determine the impact of the endovascular surgery (EVAR) for aortic disease, early and mid-term results were evaluated.
Methods: From March 2001 to June 2005, 157 patients with thoracic or abdominal aortic aneurysms underwent EVAR : 101 (64.3%) for abdominal, 51 (32.5%) for thoracic and 5 (3.2%) for combined pathology. In the thoracic group 7 patients (13.7%) had a traumatic rupture, 18 (35.3%) an atherosclerotic aneurysm and 26 (51.0%) a type B dissection. In the abdominal group 92 patients (91.1%) had an infrarenal atherosclerotic aneurysms and 9 (8.9%) a paraanastomic aneurysms. In the combined group 3 patients (60.0%) showed a progressive involvement of abdominal aorta after an acute type B dissection and 2 (40.0%) an atherosclerotic thoracic and infrarenal aortic aneurysms. An emergency procedure was required in 51 patients (32.5%) : 35/51 (68.6%) thoracic, 13/101 (12.9%) abdominal and 3/5 (60.0%) combined patients. A comorbid medical illness, ASA class III-IV, was present in 69.4% (109/157) of patients : in 80.4% (41/51) of thoracic, in 63.4% (64/101) of abdominal and in 80.0% (4/5) of combined patients. Three different stent-grafts were implanted : a Talent stent-graft (Medtronic) in 139 patients, a Gore in 16 and a Jotec in 2. The number of implanted thoracic stent-grafts varied from 1 to 4 : in 24 patients (47.1%) was covered the entire descending aorta and in 7 (13.7%) the left subclavian artery.
Results: There were no perioperative deaths. No surgical conversions or paraplegia occurred. Vascular injuries occurred in 11 (7.0%) patients, requiring a successfully rescue iliac femoral bypass in 7 and a reconstructive surgery in 4. At discharge no type I or III endoleaks was observed. At follow-up, ranging from 6 to 51 months, there were 3 late death (one procedure related) in the thoracic and 9 (none procedure related) in abdominal patients. A traumatic patient with a type I endoleak was successfully treated with a EVAR 16 months after. A dissected patient showing a late rupture distally to previous stent-graft in the descending thoracic aorta required EVAR in emergency 37 months after.
Conclusion: By the light of our experience with a mid term follow-up endovascular surgery can be considered a valid alternative to treat thoracic and abdominal aortic pathology. In patients otherwise unsuitable for conventional surgery EVAR can be a paramount option.

CV04 - 8
FATAL AND NON-FATAL COMPLICATIONS AFTER ENDOVASCULAR SURGERY OF DESCENDING THORACIC AORTA
Iannelli G., Di Tommaso L., Monaco M., Mottola M., Pinna B.G., Pantaleo A., Sarno G., Piscione F.
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Objective: To determine the impact of the endovascular surgery (EVAR) for thoracic aortic disease, fatal and nonfatal complications were evaluated.
Methods: From March 2001 to June 2005, 51 patients underwent EVAR for type-B dissection in 26 (51.0%), for thoracic aortic aneurysm (TAA) in 18 (35.3%) and for traumatic rupture in 7 (13.7%): 35 patients were treated in emergency (60.7%) and 41 (80.4%) were in III-IV ASA class. Major complications, systemic and device or procedure related, were considered.

Results: There were no deaths or surgical conversion perioperatively. A patient with TAA and obstruction of the aortic bifurcation required an hybrid procedure: aortobifemoral bypass and EVAR. Three (5.9%) vascular injuries occurred and were treated successfully by a rescue iliac femoral bypass. There were three late deaths (5.9%), one procedure related. A secondary EVAR were required in 4 (7.8%) patients: a type I endoleaks was documented in a RTA patient and successfully treated 16 months after; in the group of type B dissection, 2 patients were successfully treated by biforcated abdominal stent-grafting surgery because of progressive involvement of infrarenal abdominal aorta (6 and 8 months after) ; one patient showing a late rupture distally to previous stent-graft in the descending thoracic aorta required EVAR in emergency 37 months after.

Conclusion: Our results confirm the good outcome at a mid-term follow-up after EVAR, mosty in emergency and in high-risk patients. Non-fatal complications can be treated either by endovascular either by open surgical procedures. For acute, potentially fatal device or procedure related complications, that still entail a high open surgical risk, we consider secondary EVAR as paramount option.

14.30-16.00
MAY 13, 2006 3RD CONGRESS DAY

7TH VASCULAR SCIENTIFIC SESSION
RESEARCH AND MISCELLANEOUS

V07 - 1

EXTRACRANIAL CAROTID ARTERY ELONGATION

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Objective: Possibility of detection, quantitative and qualitative analysis of extracranial carotid artery elongation, as well as 3D reconstruction of angle deviation according to MRA.
Methods: Four vessel MRA were evaluated in a period from 01.06.1999. until 01.06.2004. Total of 363 series of images were evaluated, of which 163 satisfied Metz and Herrshaft criteria (17 coilings and 146 kinkings). Quantitative and qualitative analysis using computer 3D reconstruction were performed afterwards according to the same criteria.
Results: Angle deviation was recognized in 146 of 863 analysed series of images. 17 were bilateral. Most often, in 95% of cases, disease engaged common carotid artery. Left to right ratio was 1.42 in a kinking series and 2.4 in a coiling series. Elongation syndrome was predominant in women (1.25:1) in a median age group (45±5 years of age). Negative significant corellation was found comparing stenotic grade and age as well as comparing angle deviation and age of patients. Distribution according to previous criteria was; Metz 1:68, Metz2:52, Metz3:40. Hershaft Ic:22, Is:93, II:17, III:45 Horsh 4:12. High level of clinical aplicability of 3D reconustuction was achieved.
Conclusion: wing to highly sofisticated semi invasive diagnostic (standard four vessel MRA) we can have exact visuelisation of extracranial carotid arteries as well as morfologic features of the very same arteries. Use of modern graphic aplications for 3D resconstruction makes possible to quantify elongation syndrome features and to estimate its implications on changes in peripheral vascular bed.

V07 - 2

THE CHOICE OF PATCH MATERIAL AFTER CAROTID ENDARTERECTOMY IN ELDERLY AND SENILE PATIENTS

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Objective: The choice of a patch material after carotid endarterecromy (CE) remains subjective. This especially important for patients of the senior age groups in view of complicacy with use an autogenous material (the saphenous vein), which may be useful for aorto-coronary bypass or distal arterial reconstruction of the lower legs. The purpose of research - to determine an optimum plastic material for carotid closure after endarterectomy in elderly.
Methods: From 1996 to 2004, 68 carotid endarterectomies were performed in 64 patients. All patients were 60 years old and more. Duplex ultrasonography, transcranial doppler (TCD), selective arteriography, magnetic-resonanse angiography, spiral computer tomoangiography were included in perioperative evaluation. Bilateral TCD-monitoring with quantitative microemboli definition was performed during procedure. 29 patients underwent CE with superior thyroid artery (STA) patching, 11 - PTFE patching, 9 - saphenous patch closure. In 3 cases arteriotomy was closed with a primary suture. Eversion technique was made in 16 patients. Carotid clamping duration, hemodynamic doppler and duplex changes and complications was estimated. Long-term evaluating period made up to 8 years. Hemodynamic features of a reconstructed zone, rate and a degree of restenosis were taken into estimation.
Results: No thrombotic events, false aneurysms, or perioperative deaths occurred in all groups. The rate of restenosis (severe than 30%) in STA, PTFE and saphenous group was 3.5%, 9%, 11.1% in accordance. One reversible neurologic event (ipsilateral TIA) result from restenosis and requires reoperation, occurred in saphenous group.
Conclusion: Based on this study clinical and hemodynamic results after carotid endarterectomy in elderly patients is better after STA patching. It performance is compatible to that of eversion techniques.

V07 - 3

SPONTANEOUS RECANALIZATION OF OCCLUDED INTERNAL CAROTID ARTERY AF

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Objective: Spontaneous recanalization of occluded internal carotid artery and its surgical therapy is very rarely reported in literature. The purpose of this report is to describe 3 cases of spontaneous recanalization of internal carotid artery detected in our department with duplex ultrasonography and angiography.
Methods: Three patients (2 males and 1 female, mean age 70) with spontaneous recanalization of internal carotid artery were observed in our department of vascular surgery in a period between march 2002 and november 2005. All these patients had come to our attention after minor stroke and with a detected occluded internal carotid artery (confirmed by angiography). In no one the occlusion was due to cervical trauma or dissection. All of them were followed up with serial duplex ultrasonography. Risk factors of these patients were: smoke (2/3), hypertension (2/3) and hyperlipidemia (1/3). Drugs used were: aspirin, tyclopidin and statins. The mean interval between the occlusion and the detected recanalization was of 53 months. In all cases the recanalization previously detected by duplex ultrasonography was confirmed by angio-MRI.
Results: Two patients underwent a successful carotid endarterectomy with dacron patch, the third patient refused the proposed treatment. Six months after surgical treatment the complete patency of the internal carotid artery was confirmed by Angio-MRI. The histological studies of the plaques revealed multiple regions of recanalization and presence of great amount of acid mucopolysaccarides in the fibro-elastic tissue.
Conclusion: Spontaneous recanalization of internal carotid artery occurs quite rarely and it is not well known and overall not investigated. Up to now we don't know the potential embolic risk of this plaques. The surgical treatment seems to offer good results to the short and medium term.

V07 - 4

SURGICAL APPROACHES TO THE TREATMENT OF THE ELONGATED CAROTID AND VERTEBRAL ARTERIES

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Objective: From February 1993 to May 2005 258 patients with elongated carotid and vertebral arteries were operated on. All patients were symptomatic (132 patients underwent stroke, 101 had TIA and 145 had syncope). Majority of the patients had headache (92%), giddiness (86%), ataxia (79%). An examination program included a thorough neurologic examination, ultrasound examination, cerebral CT and angiography of the aorta arch branches. Since 1998 the MRA has been introduced in common clinical practice for revealing of elongated arteries.
Methods: In 258 patients 276 surgical interventions were performed. All operations were performed under general anesthesia. Intraoperative cerebral protection was realized with barbiturates, dexamethasone, intravenous injection of 1000 mg of gliathiline just before the artery cross-clamping and by inducing a moderate arterial hypertension. Temporary shunt was not used. Resections of elongated ICA and CCA was performed in 144 cases. ICA transposition was performed in 34 cases. VA transposition was performed in 38 cases and Power's procedure in 51 cases. Combined procedures on ICA and VA were performed in 9 cases.
Results: The analysis of the surgical treatment results has shown no cases of intraoperative lethality or stroke. Intraoperative complications included two cases of internal carotid artery injury. Craniocerebral nerve injury was observed in 9 patients, Horner's syndrom in 5 cases. The symptoms have regressed totally within 3 months. 196 patients were followed up from 24 to 96 month (at an average 68 months). 15 patients died (7.7%). Only one patient had stroke as a cause of death. Stroke in the basin of the reconstructed artery occurred in 5 patients (2.5%). 149 patients (76%) had a distinct regression of neurological symptoms.
Conclusion: So, from our experience kinking and coiling of carotid and vertebral arteries may be the reason of different symptoms of cerebrovascular insufficiency up to complete stroke. The patients with manifested elongation of carotid and vertebral arteries are subject to the surgical treatment, which seems to be a very effective method to decrease neurological symptoms and to prevent stroke.

V07 - 5

OPTIMALIZATION OF THE ABDOMINAL AORTIC ANEURYSM (AAA) MODEL IN EXPERIMENT, ASSESSMENT OF ADHESIVE MOLECULE DYNAMICS IN THIS MODEL

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Objective: The etiopathogenesis of the abdominal aortic aneurysm has not yet been fully explained, and so animal models have a very essential significance in the search for the factors which participate in the origin of AAA. The aim of our experiment was to find a suitable animal AAA model in which we would be able to assess the dynamics of AAA molecules as the basic marker of the inflammatory reaction in progress. We would thus verify the key role of the inflammatory reaction in the process of AAA pathogenesis.
Methods: We worked with 22 domestic pigs with an average weight of 20 kg. The animals were divided into 4 groups according to the mechanisms used for creation of the AAA. In group A (n = 7) we infused a solution of porcine pancreatic elastase into the lumen of an abdominal aorta, and under the renal arteries we placed a cuff which only slightly stenosed the abdominal aortic lumen in that place and thus created a considerable turbulent flow. In group B (n = 5) we proceeded identically, except that the infused solution into the abdominal aorta was a physiological solution, and we used again the cuff for increasing turbulence. In group C (n = 5) we implanted a patch of a standard width into the longitudinal aortotomy and thus created a small AAA. Group D (n = 5) was a control group and here we did not influence the animals in any way. Monitoring of all animals took 21 days, during which we performed a repeated sonographic control of the abdominal aorta. We also sampled serum of all the animals at the beginning of the experiment and after 21 days, in order to assess the expression of VCAM and ICAM adhesive molecules. The assessment was performed with radioimmunoanalytical methods. On the 21st day we resected the abdominal segment of aorta during laparotomy and put the experimental animals to sleep. Aortic preparations were examined histologically.
Results: In group A we managed to create typical AAAs in all animals. In these AAAs we found the most pronounced histological changes in the aortal wall, characterized by inflammatory infiltration of media and adventitia, disorganization of smooth muscle cells and activation of fibroblasts. In this group we also found the most pronounced significant increase of VCAM serum level.
Conclusion: According to our opinion, we created a suitable animal AAA model by means of a combination of intraluminal infusion of elastase and increased turbulence.

V07 - 6

AORTIC ENDOGRAFTS WITH SUPRARENAL FIXATION WITH AND WITHOUT HOOKS: DIFFERENCES IN THE MID-TERM FOLLOW-UP AFTER EVAR

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Purpose: to compare two different endografts with suprarenal fixation. The first, Talent (Medtronic) hookless in its top stent, and the other, Zenith (Cook) with hooks. We evaluated migrations and endoleaks in mid-term follow-up.
Methods: we made a retrospective study to analyze the follow-up in patients underwent to EVAR with Talent or Zenith endografts. We recruit to our study 119 patients. We treated 55 patients with Talent graft. Middle age was 72, 48 years; 3 were females and 52 the males. The middle ASA degree was 3. The middle diameter of AAA was 57.6 mm. and the middle diameter of their proximal neck was 23.38 mm with a length of 21.3 mm. The patients treated with Zenith graft was 64. The females were 5 and 59 the males; with a middle age of 73.6. Their ASA degree was 3. The middle diameter of AAA was 57.1 mm. and the middle diameter of their proximal neck was 23.5 mm with a length of 26.8 mm.
Results: we didn't find significant difference in the follow-up about the endografts that we compared (Talent and Zenith) regarding number of endoleaks, sack shrinkage, growth of proximal neck and number of reinterventions. During follow-up we found a statistically significant difference about the number of migrations between 5 and 15 mm: 16.3% for Talent vs. 0% for Zenith); no differences was found in the migration over 15 mm. This result is independent of growth of proximal neck and these migrations don't cause an increase of major complications.
Conclusion: EVAR using endografts with suprarenal stent with and without hooks has good immediate and mid-term results in the follow up. Our study shows that the presence of hooks in the proximal stent prevents the migration included between 5 and 15 mm. No differences was found in the clinical results.

V07 - 7

PROXIMAL NECK EXPANSION AND MIGRATIONS RELATED TO ENDOGRAFTS RADIAL FORCE: OUR EXPERIENCE IN EVAR FOLLOW-UP

Griso A., Barzaghi E., Ferrari Ruffino S., Baratto F., Nicolai L., Kontothanassis D., Camporese G., Scuro A.
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Purpose: to calculate the radial force developed by differents endografts at proximal aortic neck and to correlate it with the expansions and migrations rate during follow-up of EVAR.
Methods: it has been realized a sperimental model in order to calculate the radial forces developed by different endografts based on the oversize applied on the arterial wall. We evaluated these data, expressed in mmHG/cm^2, regarding AneuRX, Talent, Excluder, Zenith and Endologix.
Results: the evidence is a higher radial force developed by AneuRX than other endografts: using a 20% oversize, we obtained a 160mmHg/cm^2 radial force vs. 80 mmHg developed by Talent or Zenith and 70mmHg by Excluder and 40 mmHg by Endologix. In our experience we compared clinical results of AneuRX and Talent. These patients with a 12 months follow-up are 152; complete data are from 141 patients (60 Talent and 81 AneuRX). There aren't significant differences between the two groups about oversize applied (18.6% both groups) and middle diameter of preoperative proximal neck (med 24.4 - min 20 - max 29 for Talent vs. med 21.9 - min 19 max 26 for AneuRX). Proximal neck length is higher in patients with AneuRX grafts (25.9 mm vs. 20 mm Talent). The evidence, based on our data, is that the radial force applied on the proximal neck, has been significantly higher with AneuRX graft than the one developed by Talent. We noted a statistically significant correlation between migration >10 mm of endografts (12.3% AneuRX vs. 1.7% Talent) and the radial force applied to aortic proximal neck.
Conclusions: we believe it is correct, during the follow-up, to correlate the evolution of proximal neck and the radial force developped from the endograft. The correlation between radial force and evolution of the proximal neck it is not so correct. Our data show that AneuRX, developing twice radial force as much as the middle of other endografts, has supported the expansion of the proximal neck and, at the same time, this expansion has supported the graft migration. Therefore we believe that the application of high radial force on proximal aortic neck could increase the incidence of complications during the follow-up.

14.30-16.00
MAY 13, 2006 3RD CONGRESS DAY

8TH VASCULAR SCIENTIFIC SESSION
RESEARCH AND MISCELLANEOUS

V08 - 1

CIVIL AND WAR PERIPHERAL ARTERIAL TRAUMA: REVIEW OF RISK FACTORS ASSOCIATED WITH LIMB LOSS

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Objective: We sought to analyze the early results of civil and war peripheral arterial injury treatment and to identify risk factors associated with limb loss.
Methods: Between 1992 and 2001, data collected retrospectively and prospectively on 413 patients with 448 peripheral arterial injuries were analyzed. Out of these, there were 140 patients with war and 173 patients with civil injuries.
Results: The mechanism of injury was gunshot in 40% blunt injury in 24%, explosive trauma in 20.3%, and stabbing in 15.7% of the cases. The most frequently injured vessels were the femoral arteries (37.3%), followed by the popliteal (27.8%), axillar and brachial (23.5%) and crural arteries (6.5%). Associated injuries, which included bone, nerve and remote injuries affecting the head, chest, or abdomen, were present in 60.8% of the cases. Surgery was carried out on all patients with a limb salvage rate of 89.1% and a survival rate of 97.3%. In spite of a rising trend in peripherial arterial injuries, our total and delayed amputation rates remained stable. On statistical analysis, significant independent risk factors for amputation were found to be: failed revascularisation, associated injuries, secondary operation, explosive injury, war injury ($P<0.01$), arterial contusion with consecutive thrombosis, popliteal artery injury and late surgery ($P<0.05$).
Conclusion: Peripheral arterial injuries, if inadequatly treated, carry a high amputation rate. Explosive injuries are the most likely to lead to amputations, whereas stab injuries are the least likely to do so. The most significant independent risk factor for limb loss was failed revascularization.

V08 - 2

ACUTE ISOLATED DISSECTION OF THE INFRARENAL AORTA: AN ENTITY WITH INCREASING FREQUENCY?

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Objective: Isolated dissection of the infrarenal abdominal aorta represents a rare clinical entity. Use of diagnostic computed tomographic scan imaging for evaluation of abdominal pain resulted in the identification of this process with increasing frequency.
Methods: A retrospective review of the records of the patients with acute isolated infrarenal aortic dissection for a period of 5 years was performed. Four patients (3 males and one female) with a mean age of 55 years (range 48-67 years) were identified. The most common presenting symptom was abdominal pain below the level of the umbilicus radiating to the back. One patient presented with aortic rupture together with clinical signs of progressive lower limb ischemia. Abdominal computed tomography scan with contrast enhancement established the diagnosis in all cases. There was no evidence of thoracic aortic dissection. In three patients (75%) the dissection originated at the infrarenal aorta, while in one the entry tear was at the level of the renal arteries.
Results: Surgical repair with replacement of the infrarenal aorta with a tube graft was performed in two patients. In one case with aortic rupture accompanied with diffuse periaortic inflammation, the abdominal aorta was suture ligated and arterial continuity was restored with an extranatomic axillobifemoral bypass. In another patient endovascular repair with the implantation of an aortomonoiliac stent graft (Endofit, Endomed) with concurrent femoro-femoral bypass was the preferred treatment. All patients recovered without any serious complications.
Conclusion: Isolated infrarenal aortic dissection has a poorly defined natural history with potential life threatening complications. Proper surgical or endovascular repair is associated with a favorable prognosis.

V08 - 3

SPINAL CORD BLOOD FLOWMETRY DURING DESCENDING AORTA CROSS-CLAMPING IN BABOONS

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Objective: Spinal cord ischemia and paraplegia are dramatic complications of thoracic aorta surgery. We studied the effect of aorta and major vessels cross-clamping on the microvascular spinal-cord blood flow, measured by laser doppler, in twelve baboons.
Methods: Microvascular spinal-cord blood flow was recorded at thoracic T3-T4 and lumbar L4-L5 levels before surgery, and after aortic cross-clamping at left subclavian and diaphragmatic levels, after aortic cross-clamping at same levels with intercostal arteries ligation, after clamping one and both subclavian arteries, and after aortic unclamping.
Results: No flow decrease was detected comparing aortic cross-clamping with and without intercostals ligation; on the other hand, a significant flow reduction was documented after flow interruption in both subclavian arteries.
Conclusion: In non-human primates the interruption of intercostal arteries doesn't affect the spinal cord blood supply, while the subclavian-vertebral arteries flow plays a fundamental role in supplying the spinal cord during aorta cross-clamping.

V08 - 4

POST-LAPAROSCOPY IATROGENIC PSEUDOANEURYSMS OF THE VISCERAL ARTERIES

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Objective: Pseudoaneurysms of visceral arteries are rare. Traumatic loss of integrity of the arterial wall is the main prerequisite for pseudoaneurysm formation. Iatrogenic trauma of visceral arteries may infrequently (0.1% of operations) complicate laparoscopic surgery. Rarely this condition leads to pseudoaneurysm formation, as in the case presented herein with the concomitant reviewing of 56 other reported cases in the international literature in the form of meta-analysis.
Methods: Clinical information from 56 reported cases +1 from our experience were analysed. A data bank was created based on the following variables.: 1) injured artery, 2) age 3) gender 4) type of laparoscopic operation 5)Time intervening from laparoscopic operation until the final diagnosis of the pseudoaneurysm.6) Clinical presentation, 7) Diagnostic method establishing diagnosis, 8) Therapy 8) outcome.
Results: Among the 56+1(57) reported cases, 45 (78.94%) pseudoaneurysms were located to the right hepatic artery, 3(5.26%) to abdominal aorta, 3(5.26%) to renal artery, 2(3.5%) to cystic artery and 1(1.75%) to gastroduodenal, lumbar, inferior epigastric and intercostal arteries respectively. The mean patient age was 49.5 years. The female to male ratio was 2:1. The mean time from the laparoscopic operation until the diagnosis of the pseudoaneurysm was 6, 15 weeks. Most commonly patients presented with haematemesis (20/57 cases -35,08%), melaena (7/57 cases -12.28%), or right upper quadrant pain (12/57 cases -21.05%). Haemobilia was present in 3 cases (5.26%), while lumbago, acute abdomen, left flank pain, gross haematuria were less common (2 cases each -3.5%). Acute dyspnoea was noted in 1 case (1.75%). Diagnosis was confirmed by D.S.A. in 38 cases (71.7%), by C.T. scan in12 cases (22.64).and 3 cases (5.66%) with other methods (endoscopy, echo, surgical exploration). Embolisation therapy was selected for 35 cases (63.64%), Surgical ligation for 20 cases (36.36%) 25% of them were operated after failed embolisation. Mortality rate was (9, 26%).
Conclusion: Iatrogenic pseudoaneurysms of visceral arteries is an un common complication of laparoscopic surgery. Difficulties in surgical dissection or accidental injury of visceral arteries due to veress needle or trocar traumatic insertion are the causes in the vast majority of cases. The clinical picture depends on the artery involved. Diagnostic management is complicate because the diagnostic confirmation requires D.S.A. which is interventional method. The preferred therapy is embolization, which fails in 20% of cases leading the patient to surgery. The mortality rate is high.

V08 - 5

MODERN APPROACH TO THE DIAGNOSIS AND TREATMENT OF THE LOWERXTREMITIES LYMPHOEDEMA

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Objective: Elaboration of the diagnosis methods and selection of effective treatment for the patients with lower extremities limphoedema.
Methods: 220 patients with lower extremities lymphoedema from 17 to 65 years old and duration of illness between 5 and 15 years were investigated. For differential diagnosis and determination of treatment tactics several methods were applied: scyntigraphy, lymphophlebography with direct X-ray contrasting, lymph vessel biopsy, registration of lymph vessel contractile activity, light and electron microscopic study of lymph vessel morphology, computer tomography and immune status evaluation.
Results: Anatomical and functional changes of different degree present in lower extremities lymphatics of lymphoedema patients. Pathomorphological changes in vessel walls increase along with hypoplasia of lymph vessels, disorder of lymph transport, alteration of lymphangions reactivity, decrease of excitability and automaticity. Immune status of patients was characteristic for alteration of macrophagal phagocytosis and decrease of neutrophil phagocytic activity, changes in expression of CD4, CD4/CD8, CD25, CD56, CD72 and in the levels of Ig G, Ig A and Ig M. We suggest to delineate 3 stages of the disease according its etiology and pathogenesis. The results obtained make it possible to formulate new approach in treatment of these complicated patients. Contractile function in early stage of disease is corrected by means of pharmacotherapy and electric stimulation. The selection of surgical treatment tactics is based on the task to protect the contractile apparatus of lymph nodes. Lymphovenous anasthomoses are applied. If the main mechanism of lymph transportation is lost, plastic operations and improvement of lymph transportation are indicated. Surgical correction of lymph drainage is performed in 76 patients. The method is creation of either lymphangio-anasthomosis, or lymp-venous anasthomosis depending on the character of lymph vasculature involvement. To establish the effective anasthomosis function it is required to keep the structure and function at least in part of lymphangions in involved extremity. This is possible in 1st and 2nd stages of the disease. In 3rd stage a kind of resection operations is indicated.
Conclusion: 1)Treatment of lymphoedema is to be started in 1st stage of disease when the structure and function of lymph vessels is partially present 2)The goal of lymphoedema treatment is to adjust the function of lymphangion contractile function 3)Pharmacotherapy of lymphatic vessel motor functions is to be based on appropriate physiological mechanisms 4)In immune deficiency physical and drug methods of immune correction are indicated, 5)Pathogenetically established methods of treatment lead to improvement in 60-70% patients.

V08 - 6

MID-TERM EXPERIENCE WITH THE ALN RETRIEVABLE INFERIOR VENA CAVA FILTER

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Objective: Pulmonary embolism is the leading cause of death among hospitalised patients. It has been suggested that pulmonary embolism may be prevented by using prophylactic caval filters. We reported the mid-term results of 63 patients who received a new commercially available retrievable filter device.
Methods: Between January 2001 and October 2005, 63 consecutive patients (mean age 65±15 years) underwent placement of ALN filters. Thirty-five patients (55%) had femoro-iliac thrombosis, whereas 28 patients (45%) had ilio-caval thrombosis. Overall, 49% had PE. Indications for filter placement were PE prophylaxis (n = 33), temporary contraindication to anticoagulant therapy with or without proven PE (n = 29), and anticoagulant therapy failure (n = 1). Filter removal was performed when anti-thrombotic prophylaxis was considered unnecessary or when the patient could safely resume full anticoagulant therapy. Follow-up protocol included clinical evaluation plus radiological examination with color-coaded-ultrasonography and thoraco-abdominal computed tomographyangiography associated to abdominal X-rays 1, 3, 6, and 12-months after filter implantation, and yearly thereafter.
Results: Technical success for filter insertion was 100%, without any complications. None of the procedures aborted or was converted due to technical difficulties. After a median follow-up of 21months (range 1-48, median 18), there were no cases of PE or vena cava thrombosis. Two patients died of DVT-unrelated causes during the follow-up period without clinical evidence of PE or filterassociated complications. No case of device migration was observed. Twenty (31.7%) retrieval attempts were performed: in 16 cases filters were successfully retrieved, whereas 4 cases aborted. The mean implantation period was 179 days (range 53-370).
Conclusion: Our results confirm the clinical efficacy of the ALN filter either in preventing potentially fatal PE during implantation times, or in postoperative absence of complications owing to its shape that assured low thrombogenicity and occlusivity, even if it was left in place definitively, and also without antithrombotic therapy.

V08 - 7

ABDOMINAL AORTIC PROSTHESIS INFECTION: TREATMENT STRATEGY

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Objective: Abdominal aortic graft infection is a severe complication wit a mortality or amputation rate of about 20%. Classic treatment is based on graft removal, aortic ligation and extraanatomic bypass. In these paper a group of 11 patients treated with "in situ" graft substitution with two different materials were analyzed.
Methods: Eleven patients affected by abdominal aortic graft infection were treated surgically with graft emoval and "in situ" substitution. In 6 cases the new prosthesis was a silver coated dacron graft and in 5 cases a combination of superficial femoral veins of the patient and a Homograft (artery from a donour). In the second group the implant technique was a aorto- monofemoral bypass with patient's superficial femoral veins and a femoro-femoral crossover bypass with a Homograft. All patients were followed postoperatively every 3 month by duplex scan and blood tests for inflammation and infection.
Results: In the silver coated graft group 1 patient had a groin graft infection 23 month after the operation. A local replacement with superficial femoral veins solved the case. 1 patient had a monlateral graft branch occlusion with successive amputation. No mortality was noticed. In the biological graft group, 1 patient died 10 days after operation because of Homograft rupture (thoracic aorta graft). and 1 patient died 3 month after operation by non related graft complications. The other 3 cases had no complications.
Conclusion: "In situ" replacement of infected abdominal aortic graft seemed to be a effective procedute. In our opinion biological graft replacement (superficial femoral ven + Homograft) is more effective and offers probably a higher probability to avoid a new abdominal surgical procedure in these very fragile patients.

V08 - 8

LAPAROSCOPIC ASSISTED TRANSAXILLARY FIRST RIB RESECTION

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Objective: Laparoscopic assisted transaxillary first rib resection is a novel approach in the management of thoracic outlet syndrome. It allows safe identification of the different structures. The objective of our study is to assess the outcome of surgical treatment of thoracic outlet syndrome using this technique.
Methods: Between May 1999 and October 2005, 28 laparoscopic assisted transaxillary first rib resections were performed on 20 patients with thoracic outlet syndrome in our vascular unit. This retrospective study included 14 females and 6 males with ages ranging between 16 and 53 years (median 37 years).
Results: Follow-up ranged between 1 and 64 months (median 8 months). Nine patients (45%) had cervical ribs. 2 patients had history of trauma. Duration of symptoms ranged between 1 month and 15 years (median 36 months). All patients had c spine X-ray and 45% (9 patients) had Nerve Conduction studies prior to the operation. Eight patients had bilateral first rib excision, and the average time between the 2 operations was 17.5 months (median 12 months) 55% of patients had neurological symptoms, 30% had mixed symptoms and only 15% had venous or arterial symptoms. Nineteen excisions (68%) needed a chest drain The postoperative stay in hospital ranged between 2 and 8 days (median 5 days) 82% of patients (23 resections) had complete resolution of symptoms. 18% (5 resections) did not show any improvement of symptoms following surgery. Three complications were recorded, including haemothorax,

bleeding and brachial plexus injury. The latter was due to traction injury during the operation as the lower trunk of the brachial plexus was tightly stretched over the first rib.
Conclusion: Laparoscopic assisted transaxillary first rib resection is a safe and effective procedure in the management of thoracic outlet syndrome. It also offers a great opportunity for teaching.

V08 - 9

LONG TERM FOLLOW-UP OF PATIENTS TREATED FOR ACUTE ISCHEMIA OF THE UPPER LIMBS: PREDICTORS FOR SURVIVAL AND RECURRENT EMBOLISM

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Objective: Aim of this study is to review our long-term results in acute ischemia of the upper extremities.
Methods: Data from all consecutive patients operated for acute upper limb ischemia from 1/1998 to 6/2005 were reviewed. Primary end-points were overall survival, freedom from recurrent embolism and recurrent embolism free-survival.
Results: Fifty-four patients were treated; mean age was 80±12 years (range 47-100). Only 15 were male (27.7%). Nineteen patients suffered a previous acute limb ischemia. Three patients had active cancer (5.5%) and 2 coagulopathy (3.7%). Cardiac aneurysm was present in 3 patients (3.7%). AF was present on the EKG in 24 (44%). Another 4 patients had a history of AF, without EKG changes. Only 7 patients were chronically assuming oral anticoagulants and none of them had a INR within the target range. All patients had a pale and hypothermic upper limb; 40 (74%) had functional impairment and only one had gangrene of the fingers. All patients received an embolectomy using a Fogarty catheter. In 51 cases (94%) radial and/or ulnar pulse reappeared: another three had immediate clinical improvement despite the absence of distal arterial pulse. Eight patients reoccluded in the next hours/days and five of them were successfully revised. Five patients had mild persistent ischemia at dismissal and two patients underwent amputation: one finger amputation and one arm amputation. Four patients (7.4%) died perioperatively. During long-term follow-up (median 25 months, range 1 day-92 months) twenty-three patients (46%) died, 1/3 of them of a stroke, 5 for cancer, 4 due to CHF, 2 of MI and one each for pulmonary embolism, CHF, mesenteric ischemia and CRF. Another patient died of a cerebral hemorrhage while taking oral anticoagulants. Survival was 81% at 1-year, 58.6% at 3-years and 42.6% at 5-years. We observed 19 recurrent embolic events in 15 patients (30%), mainly stroke. Freedom from recurrent embolism among survivors was 87% at 1-year, 69.8% at 3-years and 58.6% at 5-years. Multivariable analysis found age (HR 1.09, 95%CI 1.04-1.15, $P = 0.0004$), the absence of anticoagulants or antiplatelets at follow-up (HR 1.93, 95%CI 1.25-3.02, $P = 0.0033$) and past MI (HR 1.6, 95%CI 1.03-2.51, $P = 0.0382$) to be the best predictors for death. There was a trend towards the association between AF and a higher incidence of recurrent embolism (HR 1.67, 95%CI 0.97-3.17, $P = 0.064$).
Conclusion: Surgical treatment of acute upper limb ischemia has good short term results both as mortality and limb salvage. Age is by far the most important factor determining long-term survival.

V08 - 10

ARTERIALIZATION OF CALF AND FOOT SUPERFECIAL VENOUS BLOOD SYSTEM FOR PATIENTS WITH CRITICAL LOWER LIMB ISCHEMIA: LAST METHOD OF RESCUE

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Objective: To evaluate the role of arterialization of calf and foot superficial venous blood system in the treatment of critical lower limb ischemia
Methods: Arterilization of the superficial venous blood system of calf and foot was performed on 67 patients with critical lower limb ischemia. The indications to operation were prolonged obliterations of the arteries of the lower limbs, excluding the chance to perform reconstructive (bypass) vascular operations. From 67 patients 48 (71.6%) were male and 19 (28.4%) female. Age of patients varied from 42 to 68 years. The median age was 57±2.3 years. Aetiology of disease was atherosclerosis in 58 (86.6%) patients (including 13 patients with associated diabeties), and arteritis was in 9 (13.4%) cases.
Results: In the near postoperative period (at hospital stage) thrombosis of the arterialised v. saphena magna occurred in 19 (28.4%) patients, in 5 (7.5%) cases thrombosis of the arterilised vs. saphena magna had led to the decompensation of the blood circulation in the operated limb, which was the cause of its amputation. Thus, in the near postoperative period primary patency of arterialized veins was -71.6%, and primary safety of lower limbs - 92.5%. Cumulative safety of the lower limb for the 5-years period of follow-up among patients with an initial critical lower limb ischemia was 67.2% (45 patients). The maximal period of patency of arterialized vein was 3.5 years (2 patients). It is also noted, that patency of arterialized vein during 2-3 months after operation authentically guarantees safety of the operated limb.
Conclusion: Arterialization of the venous blood flow in patients with critical lower limb ischemia allows to save limb from amputation in 67.2% patients uptill 5 years. At the same time, safety of the lower limbs of similar patients at conservative treatment (according to literary data) in terms till 5 years does not exceed 35-40%.

16.30-18.30
MAY 13, 2006 3RD CONGRESS DAY

9TH CARDIAC SCIENTIFIC SESSION
CONGENITAL

C09 - 1
SURGICAL TREATMENT OF HOCM IN CHILDREN WITH SEVERE HYPERTROPHY
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Objective: Treatment of children with HOCM is complicated by several factors including noncompliance medications and an increased risk of sudden death. The classic Morrow technique is not effective for HOCM children with d RVOT obstruction and extreme left ventricular hypertrophy.
Methods: The presented excision of the asymmetrical hypertrophied area of the interventricular septum causing obstruction of LVOT and RVOT simultaneously and midventricular obstruction is made from conal part of right ventricle transversely and anteriorly of the Lancisi muscle and moderator band but not through the whole thickness of IVS, that is, without penetration into the left ventricular cavity. 45 pediatric patients underwent this procedure. The simultaneous obstruction of LVOT and RVOT was noted in 14 patients. Ages ranged from 5 to 15 years (mean, 12.5). The isolated RV obstruction was noted in 1 child. The follow-up period was 26±7 months.
Results: The mean echocardiographic intraventricular gradient in LV decreased from 78.9±5.9 to 12.7±5.2 mmHg, the mean value of gradient in RVOT also reduced. In patient with isolated RVOT obstruction gradient decreased from 60 to 8.7 mmHg. Echocardiographically determined septal thickness was reduced 31.7±6.5 vs. 16.1±4.6 mm. Follow-up echocardiography showed reduction of left atrial size from 46.7±7.1 to 38.5±6.2 mm. Magnetic resonance imaging showed an increase of the diastolic volume of RV and stroke volume. Sinus rhythm was noted in all children.
Conclusion: This method is a safe and effective technique for surgical treatment of pediatric patients with severe hypertrophic obstructive cardiomyopathy unresponsive to medical management.

C09 - 2
THE APPROACHES AND THE RESULTS OF SURGICAL TREATMENT OF CONGENITAL HEART DEFECTS WITH ABSENT LEFT PULMONARY ARTERY
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Objective: To present the experience of surgical treatment of congenital heart defects (CHD) with absent left pulmonary artery(ALPA).
Methods: From January 1983 to November 2005, 31 patients were operated on: 25 with TOF, 4 with VSD and absent PV (APV), 1 with VSD, 1 with CAVC, DORV and PS. Twenty one patients underwent palliative surgery: Blalock-Taussig shunting (n = 7), RVOTO relief without VSD closure (n = 10), balloon pulmonary valvuloplasty (n = 4). The median age during the palliative operation was 4.1 years. Second/third palliative operations were necessary in 5/21 cases because of an inadequate growth of right PA. Complete repair was done in 23 patients: 18 with TOF [primary correction (n = 5), after palliative operation (n = 13)], 4 patients with VSD and APV, 1 with VSD and pulmonary hypertension. The median age during the complete repair was 6.7 years. The median interval between palliative and complete repair in patients with TOF was 3.3 years. Contralateral PA index (CPAI) before complete repair was 238.5±50.4 mm^2/m^2, median Z-score of normal Nakata index (NI):-3.2 (-3.8;-2.0). Three patients with TOF underwent complete repair without RVOT enlargement, 2 - with RVOT plasty by patch, 18 - transannular patch enlargement of RVOT (14 with TOF, 4 with VSD and APV). In 2 patients with TOF additional patch enlargement of right PA was performed after the transsection of the ascending aorta.
Results: Overall hospital mortality was 6.4% (2/31) [after palliative surgery - 4.8% (1/21), after complete repair - 4.3% (1/23)]. Diameter of RVOT after palliative repair without VSD closure was 11.0±2.4 mm, median Z-score of normal PV diameter was -1.8 (-3.2; -1.2), PA systolic pressure was 33.6±6.9 mmHg. The ratio of systolic pressure in right and left ventricles after complete repair of TOF and VSD with APV was 0.59±0.12. All patients with Z-score NI> -4 survived complete repair of TOF. One of 4 patients with CPAI<200mm^2/ m^2 died after complete repair of TOF.
Conclusion: 1. 70% (21/30) of patients with CHD, ALPA and PS needed palliative surgery; the optimal RVOT diameter after its reconstruction without VSD closure matched median Z-score equal to -1.8 of mean PV diameter in normal population; palliative operations provided the possibility of complete repair in 62% (13/21) of cases. 2. The hospital mortality after complete repair of CHD with ALPA was low (4.3%); at present the successful complete repair corresponds to minimal Z-score NI value equal to – 5.2.

C09 - 3
ANATOMIC AND PHYSIOLOGIC CORRECTIONS FOLLOWING SYSTEMIC-TOPULMONARY SHUNT OPERATIONS: ANALYSIS OF 183 PATIENTS
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Objective: Timing of corrective surgery and efficacy of the shunt operation vary between institutions. Progression of pulmonary vascular disease due to excessive waiting time for corrective surgery is an important risk for the patients and can only be eliminated with close follow-up. A total of 183 patients operated in our institution for anatomic/physiologic correction were retrospectively analyzed.
Methods: One hundred and three patients operated for anatomic/physiologic correction following systemic-to-pulmonary artery shunt construction were studied. In 144 patients anatomic and in 39 patients physiologic corrections were performed. Left modified Blalock-Taussig shunt was initially realised in 70% of patients forwarded to anatomic correction while the percentage was 65 for the physiologic correction group. In 17% of patients operated for physiologic correction a pericardial patchplasty was necessitated, whereas this percentage was found to be 9% in the anatomic correction group.
Results: Mortality was 20.5% and 8.3% in physiologic and anatomic correction groups, respectively.
Conclusion: Mortality was found to be higher in physiologic correction group than the anatomic correction group. Close echocardiographic/hemodynamic evalution and follow-up is strongly recommended especially in patients with modified Blalock-Taussig shunts headed for physiologic corrections such as bidirectional Glenn or Fontan procedures.

C09 - 4
THE IMPORTANCE OF MITRAL VALVE REPAIR DURING CORRECTION OF PARTIAL ATRIOVENTRICULAR SEPTAL DEFECT
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Objective: Mitral valve (MV) repair is an essential compound of the surgical correction of partial atrioventricular septal defect (PAVSD) in order to preserve native valve and left ventricular function. This study evaluates the results of this approach in our unit.
Methods: Between September 1997 and December 2005, 65 patients aged 0.6-64 (median 6) years, presented to our unit for repair of PAVSD. Of these, 5 patients had double orifice MV and 60 anterior leaflet cleft. Echocardiography showed 1.4±0.7 mean mitral regurgitation (MR) score and radiography increased (0.54±0.06) cardiothoracic ratio (CTR). All patients underwent closure of the primum septal defect with pericardium and the majority, MV repair.
Results: There was no operative death. Median ICU and hospital stay was 2 and 8 days respectively. Mean MR score decreased to 1.1±0.7 (P = 0.01). Also a significant reduction in heart size as defined by the CTR (P = 0.01) was noted early postoperatively. At 56±28 months follow-up 2 patients aged 10 and 29 months with severely dysplastic valves developed severe (4+) MR and congestive heart failure. They underwent MV replacement without significant improvement and both died 3 months later. All other patients retain satisfactory MV function (MR 1.1±0.9) remaining in excellent clinical condition.
Conclusion: Correction of PAVSD with concomitant MV repair has been achieved with no mortality, low morbidity and excellent mid-term results in this series with preservation of valve function in most cases. However, the function of severely dysplastic valves may deteriorate, and the long-term risk remains to be determined, especially in infants and small children requiring valve replacement.

C09 - 5

RADIOFREQUENCY CATHETER ABLATION IN NEONATES

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Objective: The study is to show our expirience of radiofrequency catheter ablation in neonates with tachyarrhythmias.
Methods: During 5 year periode (2001 - 2005) 12 patients 1st year of life with Wolff-Parkinson-White (WPW) Syndrome were treated in our centre, 50% were under 3 months of age. They have no associated cardiac defects. Minimal weight - 3.7 kg. Male-female ratio - 3:1. Half of them became symptomatic during first month of life, and 2 cases were diagnosed in fetus. Medication treatment: amiodarone (83%), digoxin (42%), carbamazepine (33%). Clinical manifistation included paroxysmal atrial tachycardia, poore feeding, pallor, rare - perioral cyanosis. Phisical examination presented 1 stage of CHF in 11 infants (91.6%) and 2A stage in 1 patient (8.4%). Two-dimensional echocardiography showed decreased cardiac output (EF - 32%), LV dilatation, MV insuffisiency. Only one patient had manifested WPW syndrome. Ortodromic reciprocating AV tachycardia with heart rate 180-200 bpm was dominant. Less common was an antegrade conduction. Topical diagnostic of accessory pathway was managed in electrophysyology study. Indications for RFA were: insessant SVT, ineffective medical treatment, signs of CHF, echo-signs of cardiopathy.
Results: Catheter ablation has been done to all patients. Left accessory pathways dominated (n = 8), and right (n = 1) or septal (n = 2) were less common. The procedure took 120+20 mn (average time), fluoroscopy time - 17+4 mn. 96% RFA was successful. In one patient with left accessory pathway we could not achieve preferable result, that's why we have choose open heart operation. There where no complications after RFA and patients recovered quickly. Controle exam in a 3 - 6 months after RFA showed good results, absence of SVT and signs of CHF.
Conclusion: Infants with WPW syndrome become symptomatic and may cause critical condition in 1st year of life. Surgical management is aprooved in patients with CHF, cardiopathy signs and ineffective medical therapy. RFA in management of WPW syndrome is effective in this group of patients.

C09 - 6

URGENT SURGERY IN INFANTS WITH COARCTATION OF THE AORTIC ARCH

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Objective: More than 50% of infants with coarctation of the aorta (CoAo) become symptomatic during the first year of life, 2/3 of them are neonates. CoAo occurs in 8% of all congenital heart defects, in 63.8% they represent critical condition early in in life. Even in medical treatment the mortalty rate during 1st year of life is 41-46% in patients with coarctation of the aorta alone, and 70-90% with associated cardiac anomalies.
Methods: During 5 year periode (01.01.2000 01.12.2005) 154 patients with coarctation of the aorta were operated in our centre, 60 (38.9%) newborn. 32 (53.3%) newborn has undergo urgent surgery the day, they entered our clinic. Average age 10+2.8 days (2 27days), weight 3.2+0.74 (1.6 3.8 kg). 16 (50%) infants had CoAo alone, the others CoAo with associated cardiac anomalies. Hand systolic pressure were 80 mmHg higher then leg (average). Preductal CoAo were presented in 23, juxtaductal in 8, postductal in 1 infant. 18 (56.2%) patients had aortic arch hypoplasia (daimeter <50% of descending aorta, less then 4mm). TTE showed LV volume hypoplasia in 12 newborns (LV EDV 22-35 ml/m^2, av.-29 ml/m^2, RV EDV 41-92 ml/m^2, av.-75 ml/m^2. Patients presented critical condition, entering centre, because CHF and lower helf of the body hypoperfusion, including oliguria and metabolic acidosis. In 2 cases high level of ferments, creatinin, urea, intestine paresis. Due to CHF and pulmonary edema in 18 (56.2%) infants we started mechanical ventilation.
Results: As a result of medical treatment in 29 patients arterial blood gases were corrected, renewed adequate diuresis. 3 patients was dead in a 3 houres after entering clinic, because of congestive heart end renal failure. Operation was hold in a 5 h after entering clinic. For aortic arch reconstruction we used coarctectomy with large end-to-end anastomosis and angioplasty of the distal part of the arch, sewn by continious suture of fine Prolene 7-0. Average Ao clamp time was 24.5+4.7 mn. In 23 (79.3%) infants only coarctation repair was performed, and in 6 (20.7%) PA banding was added. Outcome of infants with LV hypoplasia was satisfactory, echo-examination showed normal size of LV.
Conclusion: Coarctation becomes symptomatic and may cause critical condition in early postnatal periode. Surgery sould be performed on an urgent basis. Medical treatment should be based on pathophysiology of hemodynamic disturbance. Coarctectomy with large end-to-end anastomosis and angioplasty shows good results. Small LV is not contraindication for surgery in infants with coarctation of the aortic arch.

C09 - 7

DIAPHRAGMATIC PARALYSIS AFTER CARDIAC SURGERY IN CHILDREN; INCIDENCE, PROGNOSIS AND SURGICAL MANAGEMENT

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Objective: Diaphragmatic paralysis (DP) after cardiac surgery is an important complication especially in infants. We retrospectively analyzed the incidence, clinical course, surgical management and follow-up of the patients with DP.
Methods: Between 1996 and 2005, 3071 patients underwent cardiac surgery. Total number of patients with DP was 152 (4.9%). Among the 152, 42 patients were surgically treated with transthoracic diaphragm plication(1.3%).
Results: The overall incidence of diaphragm paralysis was higher in correction of tetralogy of Fallot (31.5%), B-T Shunt (11.1%) and VSD closure with pulmonary artery patch plasty (11.1). The incidence of DP which require plication was higher in Blalock-Taussig shunt (23.8%) arterial switch (19%) and correction of tetralogy of Fallot (11.9%). Mean and median age at the time of surgery were 17.8±3.6 and 6 months respectively. Mean and median time from cardiac surgery to surgical plication were 14.6±9.85 and 12 days respectively. Indications for plication were repeated reintubations(n = 22), failure to wean from ventilator (n = 12), recurrent lung infections (n = 5) and persistent respiratory distress (n = 3). Mortality rate was 19.1%. Being under one year of age, pneumonia and plication 10 days after mechanical ventilation were associated with higher incidence mortality. (P<0.05).
Conclusion: Phrenic nerve injury is a serious complication of cardiac surgery. It is more common after some special procedures. Spontaneous recovery is very rare. Being under one year of age, plication after 10 days from the surgery and pneumonia are major risk factors for mortality even in plicated patients. Transthoracic plication is helpful if performed early.

C09 - 8

EXPERIENCE WITH THE CONTEGRA® BOVINE JUGULAR VENOUS CONDUIT FOR RVOT RECONSTRUCTION - MIDTERM RESULTS

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Objective: Since introduction in 1999, pulmonary valve replacement in pediatric patients with the Contegra(r) conduit has gained widespread application with increasing enthusiasm. However, unexpected graft related adverse effects may occur.
Methods: Between 04/2001 and 08/2005, 52 patients (33 male; mean age 3.9±4.5 years, range 0.01 22.0 years; mean weight 11.6±9.0 kg) underwent right ventricular outflow tract reconstruction with the Contegra® conduit. 27 underwent primary repair, 6 had prior homografts and 19 had other previous operations.
Results: There were no deaths. Early graft related complications were: thrombus formation on the conduit valve (2; weight 3.6/3.8 kg with oversized 12 mm grafts, resolving under low-molecular-weight heparin) and severe regurgitation due to a fibrous layer covering the inner conduit (infant 4.4 kg) requiring conduit exchange. Both complications have not been observed since we anticoagulate patients with oversized Contegra-Conduits® postoperatively. At follow-up (1.3±1.1(0.2–3.8) years) all patients are alive and clinically well. There was one reoperation for pseudoaneurysm formation at both graft insertion sites under systemic RV-pressure leading to a reoperation free survival at 1 and 3 years of 98% and 88%. There were 5 balloon dilatations. Freedom from reoperation and intervention at 1 and 3 years is 93% and 74%. All other conduits perform well with regard to regurgitation and conduit stenosis.

Conclusion: Contegra® conduits are an alternative to homografts for right ventricular outflow tract reconstruction. However, there is a risk of thrombus formation in small infants; prophylactic anticoagulation may be necessary. Patients with systemic RV pressure require close observation as pseudoaneurysm formation has been observed.

C09 - 9

SURGERY FOR ANOMALOUS ORIGIN OF THE LEFT CORONARY ARTERY FROM THE PULMONARY ARTERY: 35 YEARS EXPERIENCE

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Objective: To present our experience of surgical treatment of the patients (pts) with anomalous origin of the left coronary artery (LCA) from the pulmonary artery (ALCAPA).
Methods: Since 1970 till 2005 91 pts underwent surgery for ALCAPA. The age of pts varied from 3 months to 33 years old. The status of all the pts was very severe: they suffered from dyspnea, cardiomegaly and hepatomegaly. ALCAPA was diagnosed by 2-D Echo and coronarography. Radionuclide investigations (201 Tl) of the left ventricle were performed as well. Different types of surgery due to long period of time were used. Direct implantation of LCA into the aorta was performed in 49 pts (53.9%), in 10 (10.9%) creation of aortopulmonary tunnel (Takeuchi procedure) was done and in 1 patient (1.1%) Meyer operation was performed. Just bandaging of LCA was performed in 14 children (15.5%), transpulmonary sewing of the LCA origin in 5 pts (5.5%). CABG was carried out in 10 cases (10.9%). In the ninety seventies the pericardium was talced in 2 pts (2.2%). In 12 pts (13.2%) with severe mitral insufficiency valve replacement was performed and 5 pts (5.5%) - valve repair. Left ventricle reconstruction was performed in 7 pts (7.7%) with left ventricular aneurism. In 7 cases (7.7%) undifferentiated cardiomyoblastes were implanted.
Results: Mortality rate since 1971 till 1980 was 25% (2 of 8); 1981-1990 - 33.3% (5 of 15); 1991-2000 - 26.3% (5 of 19); 2001-2005 - 30.6% (15 of 49). Cardiac assist devices were used in the perioperative period in 18 pts (19.7%).
Conclusion: 1) In spite of the significant success achieved in surgical treatment of ALCAPA, the hospital mortality continues to remain high due the initial myocardium lesion; 2) nowadays cardiac surgeons have available a wide range of choice in the treatment of ALCAPA; 3) the application of cardiac assist devices (IABP, ECMO) is the important addition in the treatment of the given cohort of pts both up to, and in the postoperative period.

C09 - 10

BALLOON ATRIAL SEPTOSTOMY (BAS) IN INFANTS WITH SIMPLE TRANSPOSITION OF THE GREAT ARTERIES UNDER ECHO MONITORING IN INTENSIVE CARE UNIT

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Objective: Balloon atrial septostomy takes leading role in preparing neonates with simple Transposition of the great arteries to the surgery.
Methods: In our Centre during 6 year period (1998–2003) we managed 85 newborns with simple Transposition of the great arteries, with average age 6.3+6.9 days of life, weight 3321.1+443.2 gr. There were 61 male (71.8%) and 24 (28.2%) females. Most of them (69.4%) presented critical condition, 13 were on mechanical ventilation. Before operation following measures were carried out: heating in incubator with moisture air, infusion therapy (correction of volume, electrolytes, arterial blood gases). We have used prostaglandin E1 infusion in 27 patients (31.7%) with progressive metobolic acidosis and severe cyanosis (arterial PO2<20 mmHg), when echo examination showed closing PDA and ASD were less than 2.5 mm, without LA hypertension. Initial dose was 0.04 mkg/kg/min, but when effect was achieved we minimised it untill 0.018+0.002 mkg/kg/min).
Results: So we performed balloon atrial septostomy in 51 infants with: ASD less then 2.5 mm, LA hypertension signs with open PDA, contraindications for prostaglandin E1 infusion and if we could not manage urgent open heart operation. We used Medtronic Rushkind catheter 4.5 Fr and 6 Fr.
Conclusion: More than 50% of infants with simple Transposition of the great arteries are needed to undergo balloon atrial septostomy. Balloon atrial septostomy under echo monitoring in intensive care unit is effective and safe for infants with simple Transposition of the great arteries.

16.30-18.30
MAY 13, 2006 3RD CONGRESS DAY

10TH CARDIAC SCIENTIFIC SESSION
VALVES

C10 - 1
AORTIC VALVE REPLACEMENT IN OCTOGENARIANS: A FOUR-YEAR EXPERIENCE
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Objective: The impact of aortic valve replacement in octogenarians increased during the last decade. The aim of this study was to evaluate the outcome of octogenarian patients undergoing aortic valve replacement.
Methods: Since February 2001, 80 patients were aged more than 80 years, receiving a Shelhigh SuperStentlessâ bioprosthesis during aortic valve replacement. The mean age at implant was 83.5±3.3 years. Etiology was stenosis in 62 pts (77.5%) and active endocarditis in 2 pts (2.5%). Concomitant procedures were performed in 49 pts (61.3%), CABG in 35 pts (43.8%), MVR 9 pts (11.2%) and others 11 pts (13.8%). The logistic Euroscore was 25.3±20.8%. Echocardiography was performed preoperatively, at discharge and, at follow up.
Results: Operative mortality was 8.8%. The mean valve size was 23.6±1.9 mm. The effectiveness of the device was demonstrated by mean gradients (16.1±7.5 mmHg for size 21, 12.9±4.4 mmHg for size 23, 10.2±4.5 mmHg for size 25, 9.9±4.2 mmHg for size 27) at discharge. The mean pressure gradient at discharge was 12.2±5.5 mmHg and at follow up 16.6±8.1 mmHg.
Conclusion: Aortic valve replacement in octogenarian patients showed acceptable operative mortality. Echocardiographic evaluation showed favorable hemodynamic function.

C10 - 2
AORTIC VALVE REPAIR FOR INCOMPETENCE DUE TO LEAFLET PATHOLOGY. CLINICAL AND ECHOCARDIOGRAPHIC RESULTS AFTER A TWO YEAR EXPERIENCE
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Objective: We analysed our results of repairing techniques for aortic valve incompetence due to leaflet pathology.
Methods: From September 2003 to December 2005, 62 patients(pts) were treated with an association of aortic leaflet and root repairing techniques. They represent 28.7% of the total aortic valve procedures in the same period. All pts were submitted to: pre and post-operative trans-thoracic echocardiography (TTE), pre and post-repair trans-esophageal echocardiography (TEE). Short term clinical follow-up was achieved after 3 months by a scheduled out-pt visit, after 6 month, 1 year and 2 years by TT echocardiography and during December 05 by a phone interview according to a prepared questionnaire.
Results: 1pt died for aortic wall rupture in Intensive Care Unit. The valve was replaced in 2pts in the same surgical-session and in 2pts before discharge. All of them was in the first 10 pts of our experience. Mean clamping time was 112±43.5min and mean hospital stay was 9.6±3.9 days. The diameters of the Functional Unit decreased as follow: annulus from 24.8±3.26 to 20.6±0.97mm (P<0.01), sinuses from 45.0±13.22 to 37.2±3.73 mm (P<0.01) and sino-tubular junction from 42.1±7.92 to 34.8±5.59mm (P<0.01). Mean clinical follow-up complete for all pts was 327±197.7days (range 13755): 2 pt were reoperated for severe aortic regurgitation and 54 pts were in NYHA I-II with a freedom from reoperation at two years of 96.4% in a Kaplan-Meier analysis. Mean echocardiographic followup was 301.5±170.4 (range 22-615) and showed no progression of aortic regurgitation.
Conclusion: Aortic valve leaflet repair seems to be a good and feasible option for selected patients both alone or associated to an aortic sparing technique concerning short-term results. An adequate learning curve and long-term follow-up is mandatory to accept these procedures.

C10 - 3
SURGICAL TREATMENT OF PROSTHETIC VALVE TROMBOSIS: TEN YEARS EXPERIENCE
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Objective: Prosthetic valve thrombosis is a rare, but the most serious complication of heart valve replacement with mechanical substitute. The aim of this report is to present our experience of surgical treatment of 18 Cases with prosthetic valve thrombosis.
Methods: From June 1995 through September 2005 1584 valve operations were performed for 1365 patients at our institution. Surgical reports of prosthetic valve re-operations over the same period were screened. Preoperative, operative and postoperative information was collected from patient cohorts.
Results: Since July 1997, 18 patients presented with prosthetic valve thrombosis. There were 12 men and 6 women. Mean age was 35.9±11.3, ranging from 22 to 60 years. Thrombosis occurred in the mitral position in 14 (77.7%) patients and in the aortic position 4 (22.2%) patients. All of the mechanical valves were bileaflet (1097 of them St.Jude, 324 of them Carbomedics, and 163 of them Sorin). The mean time from valve replacement to prosthetic valve thrombosis was 48.3±15.4 months. Diagnosis was established based on transthoracic echocardiography, transeusaphgeal echocardiography, fluoroscopy, and clinical examinations. Majority of the patients presented with poor functional status (55.6% of them in New York Heart Association functional class IV) and poor anticoagulation results (international normalized ratio =2 in 72.2% of cases). Valve re-replacement was performed for all the patients. The 30-day mortality was 16.7%.
Conclusion: Prosthetic valve thrombosis is a potentially fatal complication of cardiac valve replacement. The incidence of thrombosis is ranges from 0.5 to 6% in aortic and mitral position. After the diagnosis is made, appropriate treatment should be started. Some authors advocate thrombolitic therapy. The reported incidence of embolic complications with this therapeutic approach ranges from 3 to 20%; success rate is 80% and mortality rate 7%. According to our acceptable results it might be advocate that early surgical intervention is safe and effective treatment of choice in patients with prosthetic valve thrombosis. Subtherapeutic anticoagulation level is the major etiologic factor involved in the pathogenesis of prosthetic valve thrombosis. Patients with mechanical valve prosthesis must be informed adequately about necessity and importance of anticoagulation regimen.

C10 - 4
CLINICAL AND ECHOCARDIOGRAPHYC RISK FACTORS OF RECURRENCE MITRAL INSUFFICIENCY (MVI) IN PATIENTS OPERATED ON FOR CHRONIC ISCHEMIC MITRAL DISEASE
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Objective: Chronic ischemic mitral regurgitation is a frequent complication of coronary artery disease and is observed between 15%-20% after myocardial infarction. About 10%-15% of patients undergoing MV operation have significant regurgitation during follow up. Aim of study was to assess effectiveness of procedure and to identify potentcial risk factors of recurrence MVI.
Methods: In a series of consecutive 170 patients who underwent ischemic mitral valve operation, 40 first patients were evaluated, 31 male (77.5%), mean age 62.6±7.1 Euroscore 6.7±2.3. Diabetes was diagnosed in 14 pts (35%) and hypertension in 25 pts (62.5%). NYHA class was mean 2.42±0.67, CCS class mean 2.45±0.67. Of the 40 pts, 34 (85.5%) were after acute MI: anterior 13 pts (32.5), lateral 15 pts (37.5%), inferior 30 pts (75,0%), posterior 15 pts (37.5%). Angiography showed one vessel disease in 6 pts (15,0%), two vessels in 9 pts (22.5%), multivessels in 25 pts (62.5%). Transthoracic echocardiography (TTE) with quantitative Doppler measurements diagnosed moderate MVI in 16 pts (40%) and severe in 24 pts (60%). Carpantier type I was found in 17 pts (42.5%), type IIIB in 23 pts (57.5%). There was surgical procedure with revascularization in 36 pts (90%) and Ring implantation in 40 pts (100%). Ring diameter ranged from 26mm to 34 mm (26-28 mm-90% of pts). There was full follow up after 4 to 16 months (mediana 7.5±3,02). Before operation and during control visit clinical data were stored. TTE was performed in all pts (100%) and quantitative assessment degree of MVI, LV EF, measurement of LV diameters, volumes, sphericity indexes (SI), length and depth of coaptation were collected.

Results: Severe MVI occured in 5 pts (12.5%). In 3 of these cases additional mitral procedure was required (2 pts artificial chordes,1 pt posterior commissural closuer). In 15 pts (37.5%) we observed only mild regurgitation. According to statistical analyzes length of coaptation(P = 0.0004),NYHA class(P = 0.034), CCS class (P = 0.027), Euroscore (P = 0.021), LV4ch and LV2ch SI (P = 0.003 P = 0.018 respectively) were the predictors of postoperative MVI. We found significant negative correlation between the length of coaptation and LV4ch basal level SI (r=0.56, P<0.001), LV4ch medium level SI (r=0.35, P<0.029) and LV2ch medium level SI(r=0.47, P<0.013).
Conclusion: Repair of ischemic mitral valve is a safe and effective method of treatment We identified risk factors that may worsen the final results: length of coaptation,NYHA and CCS class, Euroscore, some indexes of sphericity. It might be advicable to repair the valve in the high risk group.

C10 - 5
CLINICAL OUTCOMES OF AORTIC ROOT ENLARGEMENT BY MANOUGUIAN TECHNIQUE
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Objective: Although Manouguian operation is a well known and widely used technique for enlarging small aortic annulus, there has been little data reporting its outcomes. We present short and long term results of Manouguian's technique performed in our institution.
Methods: Manouguian's technique was performed in 21 patients. Root enlargement was selectively performed in patients at risk for prosthesis-patient mismatch, defined as calculated projected indexed effective orifice area less than 0.85 cm^2/m^2. Following root enlargement a mechanical prosthesis or a bioprosthesis was implanted. After weaning off cardiopulmonary bypass the aortic and mitral valves were evaluated with transeusophagial echocardiography. Patients were examined with transthoracic Doppler echocardiography at the day of discharge, and recall at the end of 6th week and in every 6 months if patient can be followed up.
Results: There were 9 men and 12 women patients with a mean age of 55.3 ±10.7 years, ranging from 38 to 76. The mean cardiopulmonary bypass time was 102±17 min; and aortic clamp time was 76±22 min. The mean indexed effective orifice area measured preoperatively was 0.951±0.098 cm^2/m^2. Size 21 was the most preferred valve size in all prosthesis. Severe mitral insufficiency due to Manouguian procedure was experienced only in one patient and this patient underwent mitral valve replacement. The average follow up was 5.8 years. The 30-day mortality rate was 4.7% (1 patient) and the 5 year actuarial survival including all deaths was 90.47% (2 patients).
Conclusion: The Manouguian procedure is a safe and easily applicable technique in patients with narrow aortic annulus. And with this procedure aortic annulus can be enlarged 10 to 25 mm, which allow implantation of 1 or 2 size bigger prostheses.

C10 - 6
THE STENTLESS CRYOLIFE-O'BRIEN VALVE IN PATIENTS WITH SMALL AORTIC ANNULUS
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Objective: To evaluate the effectiveness of the stentless Cryolife-O'Brien (COB) valve as an aortic valve substitute in patients with small aortic orifice, we reviewed our experience with 65 patients with aortic annulus 21 mm or smaller who underwent aortic valve replacement with this bioprosthesis.
Methods: The indication for aortic valve replacement was aortic stenosis (n = 55), aortic regurgitation (n = 1) or mixed lesion (n = 9). The patients' age ranged from 59 to 94 years. There were 10 male and 55 female patients. AVR was performed in each patient with cardiopulmonary bypass at 28 degrees C and cold blood cardioplegia. Following resection of the aortic leaflets and debridement of the aortic annulus, the aortic annular diameter was measured with Hegar dilators. Aortic annuli were measuring 19mm (n = 27) and 21mm (n = 38); implanted valve size was 21mm and 23mm, respectively. Postoperatively, the patients were prescribed coumarinic anticoagulation for three months and were followed-up with periodic clinical and echocardiographic evaluations.
Results: Surgical (30-day) mortality was 2 patients (3.07%, 1 died of ARDS and 1 of pulmonary embolism). Follow-up ranged from 1 to 102 months. There were 2 late deaths of cerebral bleeding secondary to erroneous anticoagulation. Replacement of the implanted valve was necessitated in 2 patients due to valve-patient mismatch. Thromboembolism, endocarditis or structural deterioration of the implanted valve was not observed. Mean pressure gradient was 10± 3mmHg and 11± 5mmHg at 1 and 5 years respectively, mean EF was >50% and mean NYHA class was 1± 0 at 3 and 5 years of follow-up.
Conclusion: The stentless COB valve is an effective aortic valve substitute in patients with small aortic annulus.

C10 - 7
TWO YEARS PERFORMANCE OF A DECELLULARIZED PORCINE PULMONARY HEART VALVE
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Objective: Matrix P is a novel decellularized porcine pulmonary heart valve to replace the pulmonary valve in congenital and acquired heart disease.
Methods: From July 2002 134 patients received the Matrix P during their Ross-operation. The first 20 patients in this series in whom one year follow up has been completed including 8 patients with two years follow up form the database of this report. Postoperatively patients where followed up at 3 months, 6 months, 1 year and 2 years with echocardiography and in select patients Multislice CT was performed.
Results: Patient's age ranged from 4 years to 71 years, 26% of the patients had concomitant cardiac surgery most often CABG. There occurred two early (1.6%) deaths and 3 patients died Patient's age ranged from 4 years to 71 years, 26% of the patients had concomitant cardiac surgery most often CABG. There occurred two early (1.6%) deaths and 3 patients died during follow up. 3 months, 6 months, 12 months and 24 months transvalvular flow velocities are similar to the measurements at discharge, respectively 0.72±0.17 m/s, 0.79±0.28 m/s, 0.73±0.19 m/s, 0.76±0.19 m/s and 0.87±0.23m/s. All valves showed physiologic flow pattern and normal anatomic structures could be visualized with the Multislice CT.
Conclusion: Matrix P showed excellent short term performance, undistinguishable from that of a native pulmonary valve.

C10 - 8
COMPARATIVE STUDY OF SMALL SIZED BILEAFLET PROSTHETIC VALVES IN AORTIC POSITION
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Objective: Aortic valve replacement with small prosthetic aortic valve in adults, is still controversial. Any prosthetic valve usually causes residual pressure gradient, which differs according to the size and type of the valve. The pressure gradient may affect the result of the operation, as it acts as a pressure overload against the left ventricular ejection. Improvement of the mechanical design of the prosthetic valves was tried to improve the flow and decrease the transvalvular gradient.
Methods: Among 246 patients operated on at South Hospital in Amiens University, and Al-Azhar University Hospital between January 2003 and December 2004, 89 patients were subjected to the study with a mechanical bi-leaflet aortic valve 19 or 21 mm. Age were ranging from 16 to 82 years (mean 56). mean body surface area of 1.74 m. Each patient subjected to the study was submited preoperatively, and one year postoperatively to: I-The patients were classified according to the NYHA classification, II-ELECTROCARDIOGRAM, III- CHEST X-RAY, IV-ECHOCARDIOGRAPHIC PARAMITERS, V-STATISTICAL ANALYSIS.
Results: For valve size 21 mm (n = 49 patients, mean age 54). Mean maximum pressure gradient show significant decrease (t = 4.7068, P<0.001). Mean left ventricular mass (LVM) was decreased postoperatively with a mean decrease of 41.9±13.8% which was statistically significant (t =10.8935, P<0.001). Mean end systolic wall stress (ESWS) show no detectable change (t = 1.0020). For valve size 19 mm (n = 40 patients, mean age 48). Mean maximum pressure gradient show statistically insignificant difference, (t = 0.5147). Mean ESWS show no detectable change. Mean LVM show significant decrease with a mean of 15.7±6.6% which was statistically significant (t=5.3289, P<0.001).
Conclusion: From the previous data we may conclude that valve of 21 mm is an acceptable valve as it gives a symptomatic relief and regression of the left ventricular hypertrophy and a significant improvement in the left ventricular

systolic performance and function. The 19 mm valve shows symptomatic improvement, but it leaves a residual hypertrophy with a minimal improvement in the left ventricular systolic functions. We can also conclude that the outcome of surgery was not related to the body surface area.

C10 - 9

SURGICAL TREATMENT OF LEFT ATRIUM ENLARGEMENT

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Objective: A standardization for indications and technical aspects of the left atrium's reduction.
Methods: Between January 2003 and July 2005 250 patients underwent MVR associated with reduction of left atrial volume (LAV). LAV was = 150 cc in 4 cases (I group), 68 patients had LAV from 150 to 200 cc (II group), and 178 patients had LAV =200cc (III group). Atrial fibrillation was in 2 cases at I group, 38 - at II group and at all patients of III group. The place of plication (the roof, the posteroinferior wall which includes the ostia of the pulmonary veins and the mitral valve annulus) was chosen particularly because of irregularity of atrium's dilation and dependent on its volume. Sewing of appendage orifice was used for reduction of LAV in the I group, the atrial wall was plicated in a semilunar fashion from the upper border left atrial appendage to the inferior angle of atriotomya with a continuous over-and-over 3-O Prolene suture in the II group. Additionally, the wall of atrial roof was plicated from cranial border of left atrial appendage upward to the superior angle of atriotomya and the court between the left and right pulmonary veins were plicated too in III group. It's necessary to take in the suture line the borders of the orifice of the pulmonary veins for its partial "isolation".
Results: The imminent emplacement of the suture caused the kinking of the circumflex coronary artery in 2 cases. Early mortality was 0% in the I group, 3% - in the II group and 4.2% in the III group. An investigation of LAV with ECHO showed the reduction from 120±8.2 cc to 75±6.3 cc in the I group, from 150±11.2 cc to 80±5.6 cc in the II group and from 240±10.4 cc to 100±12.5cc in the III group. A conversion to sinus rhythm was at all patients in the I group, at 43% in the II group and at 14% in III group.
Conclusions: The reduction of left atrial volume with the plication technique is fast, secure, effective and easy reproducible procedure. The partial isolation of the pulmonary veins with the plication suture let to regain the sinus rhythm.

C10 - 10

ARE ALL HUMAN BEINGS EQUAL IN DIAMETER ?

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Objective: The aortic valve annulus has a three-dimensional sigmoïd shape, related to the semi-lunar attachments of its cusps, but can be divided in 2 circular plans: the aortic annular base (ventriculoaortic junction) and the sino-tubular junction (STJ). Dilation of these functional diameters leads to a lack of aortic valve coaptation and are the characteristic lesions of dystrophic aortic roots. A comparison of normal and dystrophic diameters of the aortic annular base and STJ could help in restoring normal valve function during valve sparing surgery.
Methods: Statistical analysis of correlation coefficients (r) between clinical characteristics (age, sex, height, weight, body surface area (BSA), hypertension) and diameters of the aortic annular base and STJ, measured by transoesophageal echocardiography in two groups: Group 1, 100 healthy adults (mean age 58.8, range 21-87); Group 2, 11681 healthy adults (metaanalysis of published echographic and anatomical studies).
Results: In Group 1, there was no statistical correlation between the clinical characteristics of the patients and their aortic root diameters, except for sex, with diameters significantly smaller for women. In Group 2, the metaanalysis of the litterature supported these results and didn't show either any significant correlation (correlation between BSA and aortic annulus diameter: r = 0.44, correlation between BSA and STJ diameter r = 0.39). In group 1, the ratio between diameters of the STJ and aortic annular base was 1.3 (STJ Ø: 28.1±3.5 mm, aortic annulus base Ø: 21.1±3.1 mm). In group 2, this ratio was comprised between 1.1 and 1.3 (STJ Ø: 26.4±3.2 mm, aortic annulus base Ø: 22.2±2.5 mm).
Conclusion: Lack of correlation between aortic root diameters and clinical characteristics of healthy adults allows to consider absolute value of diameters rather than values indexed to the BSA in adults. Therefore, a diameter of the aortic annular base could be considered as dilated when it is superior or equal to 25 mm, as well as a diameter of STJ when it is superior or equal to 30 mm. In dystrophic aortic roots, valve sparing procedures should aim at restoring a ratio between diameters of the STJ and aortic annular base comprised in the range of 1.1 to 1.3.

16.30-18.30
MAY 13, 2006 3RD CONGRESS DAY

9TH BIS VASCULAR SCIENTIFIC SESSION
ANEURYSMS

V09b - 1

ENDOVASCULAR REPAIR OF AAAS WITH DIFFICULT NECK USING ZENITH COMPOSITE CONFIGURATION

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Objective: Anatomic features of the proximal neck are recognized as being extremely important in patient selection for EVAR. Short, wide, heavily angulated, conical and bulged proximal necks are usually relevant contraindications for many commercial endografts leading to abandoning EVAR or making the procedure extremely difficult. In our study, we tried to find out whether a specially designed endograft configuration (Zenith Cook Composite, Brisbane, Australia) is able to treat such challenging neck anatomies, since it gains extra fixation and columnar strength from the aortic bifurcation, where it seats after the deployment.
Methods: During 30 months 70 patients with AAA were submitted to EVAR with various endoprostheses. Fifteen (15) of them were found to have difficult proximal neck anatomy. In these cases Zenith Composite self expanding endoprostheses was implanted, with suprarenal fixation and attachment to the aortic bifurcation for extra support. Medium follow-up was 12 months. All patients were screened with post-op spiral CT-Angio with 3 d reconstruction during 1st, 6th, 12th month and annually thereafter. CT scans were analyzed for neck recontouring, endoleak, graft migration and aneurysm maximal diameter.
Results: Primary technical success was 100%. Completion angiogram revealed no endoleak or migration. 30-day mortality was zero. Migration, endoleak type I, thrombosis, kinking, frame fracture, renal or distal embolization was not observed. One patient suffered from postoperative paraparesis which was attributed to spinal cord ischemia, but was resolved within 48 h. In another patient endoleak type II was found and is under surveillance, since the sack is not expanding.
Conclusion: Special attention should be drawn to the shape of the aortic neck when endografting AAAs. We believe that Zenith Composite endoprosthesis with terminal attachment to the aortic bifurcation enhances stability and fixation, aiding proximal sealing of the graft against the aortic wall. So it is able to deal effectively with difficult necks. Larger series and longer follow up are necessary to draw safer.

V09b - 2

SINGLE-CENTRE EXPERIENCE WITH THE TALENT STENTGRAFT FOR ENDOVASCULAR ANEURYSM REPAIR

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Objective: To report the mid-term single-centre experience with the Talent stentgraft for endovascular aneurysm repair.
Methods: Between July 2000 and July 2005, 157 consecutive patients underwent treatment with the Talent stentgraft. Patient characteristics as well as patient operative and follow-up data were prospectively gathered.
Results: Patient characteristics: Of the patients, one hundred fifty (96%) were male; 34% had hypertension; 65% had cardiac and/or pulmonary disease and 59% were at high risk (ASA=3). Mean age was 72 years (range 52-90 years) and mean AAA diameter was 63mm (range 30-125 mm). Hospital stay: The endovascular graft deployment was successful in all but 5 cases (97%). Median hospital stay was 3 days (range 1-67 days). In hospital mortality was 2%. In hospital morbidity was 23%. Follow-up: At discharge 39 patients (25%) had an endoleak: 5 type 1; 33 type 2; 1 type 3. 64% of these endoleaks resolved without intervention. During follow-up (median 20 months, range 0-56 months) 12 patients (8%) required a secondary procedure for endoleak repair and another 9 patients (6%) required a non-endoleak related secondary intervention. After 3 months AAA diameter had decreased 2% (62 mm) and after 2 year AAA diameter had decreased 7% to 59 mm. During follow-up there was one aneurysm related death (1%), 18 deaths (11%) occurred due to other causes. Eight patients (5%) required conversion to open repair. No fatal AAA ruptures occurred.
Conclusion: Treatment of infrarenal AAAs with the Talent stentgraft has good early and mid-term results although extensive follow up is necessary as secondary problems may occur.

V09b - 3

LONG-TERM RESULTS OF ENDOVASCULAR ABDOMINAL AORTIC ANEURYSMS - A SINGLE CENTER EXPERIENCE

Szmidt J., Rowinski O., Galazka Z., Nazarewski S., Grochowiecki T., Jakimowicz T., Pietrasik K., Grygiel K., Solonynko B., Wojtaszek M., Chudzinski W., Madej K., Pacho R., Kanski A.
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Objective: Current methods of open surgical treatment of abdominal aortic aneurysms (AAA) have been successfully applied for almost 40 years in patients with low operative risk. In 1991 Parodi and Volodos introduced an endovascular procedure intended for patients suffering from various comorbidities and therefore unfit for open surgery. This new method was a breakthrough in effective treatment of high risk patients suffering from AAA. The aim of our study was to assess the long-term results of endovascular treatment of abdominal aortic aneurysms performed at our center.
Methods: Between April 1998 and June 2005 we performed endovascular abdominal aneurysm exclusion in 370 patients. Mean patient age was 70 years (range 48–89 years). In this population 299 (80.8%) patients were considered to be high risk in the ASA scale (grade III and IV). Diagnostic modality consisted of: color Doppler ultrasonography, spiral computed tomography and digital subtraction angiography in disputable cases. Using these investigations the following aneurysm morphologies were determined: maximum AAA diameter (42–110 mm, mean 60 mm), AAA neck diameter (18–30 mm, mean 25 mm), AAA neck length (10-45 mm, mean 24 mm). Early and late results were assessed based on the Eurostar registry protocol.
Results: In 357 (96.5%) patients successful exclusion of the AAA was achieved. In 13 patients (3.5%) conversion to open surgery was necessary because of migration of the stentgraft into the aneurysm sac (8 patients) and in five patients because of the inability to remove the introducer device from the iliac artery. In the early postoperative period 12 patients died from myocardial infarction, 3 from a pulmonary embolism and 1 from mesenteric artery embolism. Endoleaks were observed in 67 (18%) patients postoperatively which were treated by either extension, balloon angioplasty or left for observation. In two patients in 29-th and 32-nd postoperative month rupture occurred, which was successfully treated by open aneurysmectomy. Other complications included: stentgraft limb thrombosis - 24 (6.6%) cases, stentgraft limb stenosis - 31 (8.4%) cases, groin hematoma - 6 (1.6%) cases, pseudoaneurysm of the femoral artery - 1 (0.27%) case. The mean observation period was 31 months (range 1-85 months).
Conclusion: Endovascular AAA exclusion is an effective and safe method of treatment particularly in high risk patients with open aneurysmectomy remaining the method of choice for low risk patients. The short overall follow-up period for this method and the possible occurrence of late complications necessitates close postoperative scrutiny and regular diagnostic screening.

V09b - 4

LATE ANEURYSM RUPTURE AFTER ENDOVASCULAR ABDOMINAL ANEURYSM REPAIR

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Objective: The goal of endovascular repair is to protect the patient from aneurysm rupture. Careful surveillance should be performed postoperatively in order to select patients with aneurysm growth and therefore the highest rupture risk.
Methods: From 1998 in the Department of General, Vascular and Transplant Surgery 370 patients with abdominal aortic aneurysms were treated endovasculary. All patients were followed-up postoperatively according to the EUROSTAR protocol, with a CT scan performed postoperatively in the 3, 6 and 12 month and annually thereafter with good compliance. Because of this we had the opportunity for early treatment of complications, especially endoleaks which may cause aneurysm growth and subsequent rupture. We present two cases of late aneurysm rupture after endovascular treatment of abdominal aortic aneurysm.
Results: Case 1: A 77 year old patient was admitted to our Department 29 months after endovascular repair of an 81-milimeter infrarenal abdominal aortic aneurysm (Excluder, Gore). At admission he presented with severe abdominal pain and hypovolemic shock which required dopamine admission.

A CT-scan confirmed aneurysm rupture. The patient was immediately operated and an aorto-bi-iliac graft was implanted. The postoperative period was complicated by transient spinal cord ischemia. He was discharged in the 30-the postoperative day and remains alive. During his post-EVAR follow-up we discovered neither endoleak nor aneurysm growth. CT-scan at rupture revealed migration of proximal stentgraft extension, endoleak type IA and rupture at the proximal neck into the extraperitoneal cavity with a large hematoma. Case 2: A 68-year-old patient admitted with aneurysm rupture 32 months after EVAR for a 74milimeter AAA with a Zenith (Cook) device. Open aneurysmectomy was performed without any complications and the patient was discharged 21 days after rupture and is still alive and well after 6 months. CT-follow-up before rupture showed a persistent type II endoleak from the lumbar arteries with no aneurysm growth.
Conclusion: Although the risk of aneurysm rupture after EVAR is low, all patients treated endovasculary should be routinely monitored in order to early select cases with potential endoleaks which may lead to subsequent fatal complications.

V09b - 5
MININVASIVE AORTIC SURGERY: LEFT SUBCOSTAL INCISION WITH BLENDED ANAESTHESIA
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Objective: the introduction of fast-tracking multidisciplinary programs allow good results in postoperative outcome in many surgical specialties (1). We evaluated a multimodal clinical program (based on mininvasive surgery, epidural anaesthesia and early mobilization and feeding) in abdominal aortic surgery (2).
Methods: between June 2000 and October 2005, 323 not selected patients were treated for atherosclerotic aorto-iliac occlusive disease (aorto-femoral bypass) and aortic or aorto-iliac aneurysm (aorto-aortic graft or aorto-iliac bifurcated graft). An epidural catheter at T6-T7 interspace and the infusion of bupivacaine 0.5% (15 to 25 ml) allow sensory block between T4-S3. We perform a light general anaesthesia using sevoflurane with a laryngeal mask in spontaneous breathing; we did not use nasogastric tube. We placed patients in dorsal decubitus; we executed a transperitoneal access with a left subcostal incision (10 to 15 cm) parallel to the condro-costal edge and spreaded from the linea alba to the edge of the rectus muscle. The bowel was maintained in abdominal cavity and manipulated with care. We used standard surgical instruments. No drains were placed. Patients were tranferred to the surgical ward at the end of surgery; they were early mobilized, under medical and nurse assistance, and enforced to drink and to eat. Analgesia was achieved with a continuous epidural infusion of bupivacaine 0.25% supplemented by oral ibuprofen.
Results: we observed a mortality rate of 2.5% and low postoperative morbidity: 1.4% of cardiac complications, 3.7% of transient creatinine increase, and no pulmonary complications. Median hospital stay was 3 days (range 2–21). All patients were discharged at home. The same day of surgery patients ambulated in mean 536 meters (95% CI: 81.4) and 2544 meters (95% CI: 208.9) the day after; they assumed 36.2% of their daily caloric requirement in the same day of surgery and 1583 Kcal (95% CI: 105.2) with oral diet the day after (77% of daily caloric requirement).
Conclusion: this multidisciplinary program can be proposed for all patients undergoing aortic surgery without prior selection, major technological investments and long-term surveillance. Hospital stay and morbidity after abdominal aortic surgery can be decreased by performing mininvasive surgical approach, thoracic epidural anaesthesia-analgesia and aggressive postoperative nursing on the ward.
1. Wilmore DW, Kehlet H. Management of patients in fast track surgery. BMJ 2001;322:473-6. 2. Brustia P, Renghi A, Gramaglia L, et al. Mininvasive abdominal aortic surgery: early recovery and reduced hospitalization after a multidisciplinary approach. J. Cardiovascular Surgery 2003;44:629-35.

V09b - 6
LAPAROSCOPIC CLIPPING OF SPLENIC ARTERY ANEURYSM: REPORT OF TWO CASES
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Objective: Among visceral artery aneurysm the splenic ones are the most frequent and since they occur most in young women, the less invasive treatment as possible, is one of the goals to achieve. The Authors report their experience with laparoscopic clipping of the last two cases got to their observation. The intervention has been conducted with the help of an laparoscopic intra-abdominal ecocolordoppler probe.
Methods: Two young women presented a splenic artery aneurysm (saccular, 25 mm) each. One was localized in the main trunk of splenic artery and the other one in a division vessel. The interventions have been conducted under general anesthesia and with three laparoscopic access port. Through one of these the laparoscopic intra-abdominal ecocolordoppler probe has been introducted into the operative field for verifying the vessels we encountered and has been fundamental when we have wanted to control the right exclusion of the aneurysm at the end of the interventions.
Results: The first case was treated by clipping the main trunk and we observed a jeopardizing of the superior pole of the spleen, but using the laparoscopic intra-abdominal ecocolordoppler probe, we noticed a good vascularization of the spleen itself that, after some min, returned to a good and uniform appearance. The second one did not turned into a temporary ischemic mode since the aneurysm involved a division ilar trunk of the splenic artery. In this second case an adjunctive clip was delivered in another vessel starting from the aneurysm itself.
Conclusion: The Authors assume that in selected cases this tecnique can be safely used and it is well accepted by the patients. They assume as well that the laparoscopic intra-abdominal ecocolordoppler probe is fundamental in the management of the spleen and for verifying the complete exclusion of the aneurysm itself checking the smoke effect of the blood and the complete absence of color inside

V09b - 7
SURGERY OF ANEURISMS OF THE AORTIC ARCH BRANCHES
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Objective: Aneurisms of the aortic arch branches happen rarely in the medical practice - their number is under 3% of the aneurisms of the peripheral arteries.
Methods: During the period of 1999–2005 yy some examination and treatment of 30 patients with aneurisms of the aortic arch branches have been held. In all the cases the ultra sound scanning, selective angiography was performed, as well, when necessary, computer tomography, transcranial doplerography, electroencephalography. The patients with the aneurisms of the subclavian artery in 12 cases got the resection of the aneurism and the bypass of the subclavian artery, in 1 case – the resection of the aneurism and the ligation of the subclavian artery. 7 patients were treated only with the supraclavicular accesses, the other 3 – supraclavicular and subclavicular accesses, by the other 3 - supraclavicular access was combined with the transtoracial access. By the aneurisms of the carotid artery access by the medial edge of the m.sternocleidomastoideus has been used. 15 patients got the resection of the aneurism followed by the bypass, 1 case - with the resection of the aneurism and the ligation of the internal carotid artery. In 1 case with the false aneurism of the right common carotid artery X - ray endovascular endovascular graft of the common carotid artery were performed.
Results: In 12 cases false aneurisms of the aortic arch branches were identified, in 18 cases it was true. As for localization – in 17 case the aneurisms of the carotid arteries were met, and in the 13 cases - the aneurisms of the subclavian artery. 2 patients who were operated due to aneurism of the subclavian artery (6, 7%), got the occurrence of the transitory peripheral paresis of the arm; among the patients who were operated due to aneurism of the carotid artery, 1 patient (3, 3%) got the acute insufficiency of the brain blood flow.
Conclusion: The active surgical practice is being priority – driven in the treatment of the patients who have aneurisms of the aortic arch branches, because of the big number of the appeared complications, which might appear in the cases when awaiting tactics or inadequate treatment have been chosen. In the cases of the fake aneurisms of the aortic arch branches the most long - rage treatment consists of combined endovascular and surgical treatment.

V09b - 8
RUPTURED ABDOMINAL AORTIC ANEURYSM - MULTIFACTORIAL STUDY
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Objective: Abdominal aortic aneurysm (AAA) rupture is a very serious acute surgical emergency, which exposes the patient to a very high mortality risk. So-called global mortality of the rupturing AAA (rAAA) is nearing 80%, in spite of better diagnostic screening, new therapy options (EVAR), and undoubtedly better complex intensive post-operative care. Thanks to these factors, post-operative mortality has been decreased to 40–50%. The future of a patient brought to the hospital with a diagnosis of rAAA depends on many factors.
Methods: In a multifactorial study, we assessed the significance of factors affecting the survival of patients with rAAA, who were operated on in our University Hospital from November 1999 to March 2005. The group consisted of 82 patients (61 male, 21 female) with an average age of 73.5 years. We assessed the significance of arterial hypertension, ischemic heart disease (IHD), diabetes mellitus, ischemic disease of the lower limbs (IDLL), chronic obstructive pulmonary disease and status post stroke. We were also interested in whether the AAA diagnosis had been known to us, and therefore whether the patient had been in our dispensary care. Within the multifactorial study, we also assessed the time between the onset of the symptoms and the admittance to the emergency department of our hospital, the state of the patient on admittance, consciousness, necessity of cardiopulmocerebral resuscitation (CPCR), blood pressure, basic laboratory parameters (hemoglobin, hematocrit, leukocyte count, urea, creatinine), the diameter of the aneurysm, the presence of hemoperitoneum, the type of the operation, the quantity of transfusion, and post-operatively the duration of artificial ventilation or circulatory support.
Results: There was 38% mortality within 30 post-operative days in our group. We assessed the relationship between the particular assessed factors and mortality by using Spearman's correlation. According to our results, there is a statistically big correlation between mortality within 30 days and CPCR necessity (P<0.001), age (P<0.02), IHD and IDLL presence (P<0.04), consciousness loss (P<0.02), hemoglobin levels (P<0.04) or the presence of hemoperitoneum (P<0.04).
Conclusion: All these factors play an important role in the resulting success or failure of rAAA treatment. Although it is obvious, that each patient must be approached completely individually, these parameters can be helpful in decision making during the treatment process.

V09b - 9

NECK RESHAPING WIDENINGS HYBRID APPROACH OF AORTIC ARCH ANEURYSM

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Objective: Aortic arch repair is always a surgical challenge, specially for old patients or when associated with other pathologies. Few cases of endovascular stent graft (ESG) repair for aortic arch aneurysm are reported with transposition of the supraaortic vessels. This procerdure requires, a correct placement of the ESG and an appropriate landing zone for sealing and fixation. These features limits the indication to use ESGs stimolating the market for new devices.
Methods: We propose a new technique for neck reshaping to ensure a safe and a sealing landing area, (according to Criado classification) in zone 0-1 ESG implantation. In five patients presenting aortic arch aneurysm we performed an hybrid aortic arch repair procedure (HAARP): midsternotomy, transposition of the supraaortic vessels, proximal banding of the aortic arch, Rx markers, and ESG implantation. In particular we performed the banding of the aorta to reshape the neck proximal to the aneurysm (Zone 1-2) to facilitate the positioning and fixation of the endograft in the ascending aorta (Zone 0-1) avoiding postoperative endoleaks and dislocation.
Results: Four procedures were uneventful with 1-day ICU recovery. One patient suddenly died after 30 days waiting the ESG implantation just scheduled 40 days after the epiaaortic transposition. The postoperative and the following CT scan showed good patency of the epiaortic vessels and not revealed any endoleak. The mean follow-up was 16.3 (D.S 3.3)
Conclusion: Transposition of the epiaortic vessels, combined with banding of the aorta and ESG implantation, provide as an alternative way of treatment to the more conventional open aortic arch repair. We believe that banding of the ascending and proximal aortic arch could optimize the fixation of the ESG in the zone 0-1. These result should be validated by other cases and long term followup.

V09b - 10

ENDOVASCULAR STENT-GRAFT TREATMENT OF THORACIC AORTIC DISEASE

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Objective: Aneurysmal diseases of the thoracic aorta are life-threatening conditions. Endovascular treatment of aortic disease has emerged as an alternative mode of treatment that is particularly attractive for patients with severe comorbidities. Although endoluminal interventions are minimally invasive, they are associated with complications, as are surgical methods.
Methods: In the Department of General, Vascular and Transplant Surgery between April 2000 and December 2005, 82 patients underwent endovascular repair for lesions of the descending thoracic aorta out of which 56 presented with aneurismal disease and 26 with either acute or chronic dissections. Two patients were admitted after acute trauma and 4 were admitted with a diagnosed ruptured TAA. Patient age ranged between 19 and 75 years. Preoperative diagnosis was performed through spiral computed tomography and digital subtraction angiography.
Results: All patients underwent endovascular repair using straight tube commercial stentgrafts - Talent (64), Zenith (17) and Gore (1). The procedure was conducted under regional epidural anaesthesia. Upon completion we observed no severe surgical nor neurological complications. Mean follow-up was 34 months (0 to 76 months). Technically successful implantation was achieved in 81 patients. An endoleak with a growing aneurysm was observed in one patient who was eventually treated by a hybrid procedure.
Conclusion: There is much enthusiasm for the use of endovascular devices, especially for the treatment of thoracic aneurysms; for it may indeed hold the potential for the greatest patient benefit as conventional open surgical repair continues to offer serious morbidity and mortality rates.

16.30-18.30
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9TH VASCULAR SCIENTIFIC SESSION
VEINS

V09 - 1
FETAL FIBROBLAST THERAPY IN THE TREATMENT OF VENOUS LEG ULCERS
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Objective: Investigation of efficacy of the human fetal fibroblast therapy in the treatment of venous leg ulcers.
Methods: The treatment group consisted of 42 patients with 76 leg ulcers. 51 of these ulcers (29 patients) were due to previous deep venous thrombosis, 25 ulcers (13 patients) - due to primary varicose veins. In the control group, there were 40 patients with 75 leg ulcers. 49 of these ulcers (27 patients) were post-thrombotic, 26 ulcers (13 patients) - due to primary varicose veins. The mean area of the ulcers by the beginning of the treatment was 64 sm^2 (from 6 sm^2 to 1050 sm^2) in the treatment group and 56 sm^2 (from 5 sm^2 to 980 sm^2) in the control group. By the beginning of the treatment the period of existing of the post-thrombotic ulcers averaged 7.6 year in the treatment group and 7.1 year in the control group. The mean existing period of ulcers due to primary varicose veins was 3.3 year in the treatment group and 3.2 year in the control one. During first (necrotic) and second (granulation) stages of ulcers healing their treatment was equal and included using of water-soluble antimicrobial ointments. During third stage (epithelialization) in the treatment group culture of fetal fibroblasts was employed, and in the control group modern hydrocolloid, alginate and collagen wound dressings Suprasorb® were used. The fibroblast culture is cells of the line 1100/14, isolated from human fetal lungs and grown on the surface of micro-porous film Foliderm®. In both groups all the ulcers treatment was being conducted together with compression therapy.
Results: In the control group the healing rate was 84.6% (22 ulcers) for varicose ulcers and 77.6% (38 ulcers) for post-thrombotic ones. The mean healing term was 3.5 and 3.8 months correspondingly. Necessary frequency of wound dressing's replacement during epithelialization stage averaged 1 in 2.3 days. In the treatment group the healing rate was 100% (25 ulcers) for varicose ulcers ($P<0.01$) and 98% (50 ulcers) for post-thrombotic ulcers ($P<0.01$). Healing period averaged 1.7 weeks for varicose ulcers ($P<0.01$) and 3.9 weeks for post-thrombotic ones ($P<0.01$). Necessary frequency of wound dressing's replacement during epithelialization stage in this group averaged 1 in 7.2 days ($P<0.01$).
Conclusion: Employment of human fetal fibroblasts of the line 1100/14, grown on the surface of micro-porous film Foliderm® is a very effective method to promote venous leg ulcers healing. The fibroblast wound dressing significantly exceeds modern wound dressings Suprasorb® in efficacy.

V09 - 2
LONG-TERM RESULTS OF ENDOVENOUS LASER TREATMENT IN THE MANAGEMENT OF CHRONIC VENOUS INSUFFICIENCY
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Objective: Endovenous laser therapy has been a feasible option in the treatment of uncomplicated varicose veins. This study aimed to evaluate its effectiveness in the management of chronic venous insufficiency in patients with long saphenous vein incompetence.
Methods: Patients with chronic venous insufficiency and venous leg ulcers, resistant to compression therapy, were selected for endovenous laser treatment using diode laser (DIOMED) in outpatients setting from May 2003 to April 2004. Patients with sapheno-femoral junction or long saphenous incompetence were included. Compression was not used following successful endovenous laser treatment and patients were assessed for evidence of ulcer healing, long saphenous vein occlusion and patient satisfaction at 3, 12 and 22 months. Results are expressed as median (range).
Results: 23 limbs in 20 patients with chronic venous insufficiency were treated with endovenous laser treatment over a period of twelve months. The median age was 59 years (32–76) with a female preponderance of 57%. All patients had evidence of chronic venous insufficiency, graded at C5 or greater on the CEAP classification (C5: 16, C6: 7). The cumulative 3, 12 and 22 months healing rates were 87% (20/23), 100% (23/23) and 96% (22/23), respectively. The only patient having a recurrence of ulcers at 22 months follow up had mid calf perforator incompetence which was treated successfully with compression hosiery. The long saphenous vein duplex occlusion at 3, 12 and 22 months was demonstrated in 100% (23/23), 95% (19/20) and 86% (12/14) respectively. Eighty seven percent (20/23) patients were satisfied with the results of treatment without any major procedure related complication.
Conclusion: These results demonstrate that endovenous laser treatment, carried out in an outpatient setting, is effective in the treatment of chronic venous insufficiency, with good patient satisfaction and no major complication. A randomised control trial is required to further evaluate the efficacy of endovenous laser treatment in chronic venous insufficiency.

V09 - 3
ENDOLUMINAL LASER TREATMENT OF VARICOSE VEINS: IS SAPHENOFEMORAL JUNCTION INTERRUPTION NECESSARY?
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Objective: Endolaser thermosclerosis (ELT) in surgical treatment of vein varicose disease (STVVD) is an easy and less invasive ambulatory method than classical stripping procedure with good functional and cosmetic results. The aim of these study was to investigate if saphenophemoral junction interruption (SJI) associated to ELT play a role in STVVD recurrence.
Methods: This is a retrospective observational study. From February 1999 to November 2005, 63 legs from 65 patients were treated by mean of ELT applied inside saphena magna (48 cases) or both saphenas (15 cases) without SJI: Group I. 28 more legs from 15 patients were treated in the same manner inside saphena magna with SJI: Group II. In group I most of the patients were fatter than group II, with difficult groin access. All procedures were performed using a diode laser source under local anaesthesia after eco-doppler mapping on ambulatory way. A microsurgical Müller operation was associated in both groups. In all cases severe saphenofemoral reflux was tested. The C.E.A.P. functional status was not different (3.6±0.8 in group I vs. 3.7±1.4 in group II). Pearson´s chi^2 and Fisher's exact tests were performed. Student's *t* test independent groups was used. Kaplan – Meier actuarial studies were applied.
Results: No mortality or mayor complication were found on surgical procedures. No wound infection, lymphocele, lymphorrhagia, paresthesies, haematomas or hyposthesia were noted. In a 3.8 years follow up (6.4 - 0.2 years) the functional status became in 1.3 in group I vs. 1.5 in group II, (P = n.s.). Duplex studies (6 – 24 months of follow up) showed 30% permeability in saphenofemoral junction in group I but no reflux. Diameter reduction and flow, decreased to less than 10% in these cases. In both groups the saphena vein was occluded but one in group I, which needed re-operation 2 years later.
Conclusion: Endolaser thermosclerosis in surgical treatment of vein varicose disease without saphenophemoral junction interruption, can be an acceptable option, mainly in difficult groin access in patients with important obesity.

V09 - 4
ROLE OF SPIRAL COMPUTED TOMOGRAPHY IN THE EVALUATION OF ILIAC COMPRESSION AND CONGENITAL ANOMALIES IN PATIENTS WITH ILIOFEMORAL DEEP VEIN THROMBOSIS
Baeshko A.A., Zhuk V.H., Orlovski N.Y., Ulezko A.E., Goresckaya V.I.
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Objective: Within the last several years spiral nonenhanced and contrast-enhanced computed tomographic emerged as a noninvasive modality for the evaluation of patients with vascular diseases. The purpose of this study was to evaluate the spectrum of underlying anatomic abnormalities in iliofemoral deep vein thrombosis.
Methods: During the past 3 years, 62 consecutive patients with symptomatic iliofemoral vein thrombosis were studied with both color Doppler sonography and spiral nonenhanced and contrastenhanced computed tomographic with use of axial sections and their three-dimensional reconstructions. Forty seven patients had left-sided thrombosis, 10 had right-sided, and the remaining 5 had bilateral thrombosis.
Results: 50 (80.6%) of 62 patients had significant anatomic abnormalities in their iliac veins or inferior vena cava. In patients with left -sided thrombosis most common lesion (38 of 43) was external compression common iliac vein

by the right common iliac artery and bony spur; in 2 patients Iliofemoral thrombosis caused by compression of common iliac vein an iliac aneurysm, in 2 -an internal iliac artery, in 1 - pelvic lipomatosis. Of the 10 patients with right-sided thrombosis, 5 had significant anatomic abnormalities including encasement or extrinsic compression of their iliac veins by various causes. Among 5 patients with bilateral thrombosis, 4 patients had congenital anomaly of inferior vena cava, 1 had external compression of inferior vena cava by bony spur.
Conclusion: Spiral computed tomographic can demonstrate adjacent abnormalities, which may contribute to the development of thrombus. Iliac vein compression syndrome is the most probable cause of iliofemoral deep venous thrombosis.

V09 - 5
ENDOVENOUS LASER THERAPY CANNOT REPLACE SURGERY IN THE TREATMENT OF VARICOSE VEINS
Mekako I.A., Hatfield J., Bryce J., Heng ST.M., Lee HL.D., McCollum T.P., Chetter C.I.
Academic Vascular Surgical Unit, Hull Royal Infirmary, Hull, England

Objective: Endovenous laser therapy (EVLT) is a relatively new minimally invasive treatment for varicose veins. Our aim was to determine what proportion of patients with varicose veins secondary to sapheno-femoral junction (SFJ) and long saphenous vein incompetence, on a waiting list for varicose vein surgery are suitable for EVLT.
Methods: A one-year prospective review of the waiting list for day-case varicose vein surgery in a university hospital was performed from May 2004. The period represented the first year of commencement of EVLT at the centre. I50 sequentially selected patients listed for unilateral primary high tie, stripping and stab avulsions were invited for duplex ultrasound scan to assess suitability for EVLT. Suitability criteria included 1. Isolated sapheno-femoral junction incompetence and/or long saphenous vein reflux 2. Absence of concomitant major incompetent thigh branch 3. Perigenicular long saphenous vein diameter greater than 5 mm 4. Patient acceptance of /suitability for local anaesthetic procedure.
Results: Four hundred and eighty two patients were on the waiting list (328 women), mean age 45 years (range 18-80). Of those invited, 112 (74.6%) attended. 63 patients (56%) were suitable, while 49 (44%) were unsuitable. Of unsuitable patients, 19 (39%) had an associated incompetent thigh branch in addition to long saphenous reflux, 10 (20%) had perigenicular LSV less than 5 mm, 6 (12%) wanted general anaesthetic and 1 patient (2%) preferred surgery. One patient (2%) had no sapheno-femoral or long saphenous incompetence on duplex scan investigation, and 12 patients (24%) were unsuitable for combined reasons.
Conclusion: Only approximately half of all patients listed for primary varicose vein surgery are suitable for EVLT. It is anticipated that as expertise grows, indications will be expanded and more patients will be offered EVLT.

V09 - 6
ROLE OF SAPHENOUS VEIN WALL IN THE PATHOGENESIS OF PRIMARY VARICOSE VEINS
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Objective: Varicose veins may be due to weakness of the vein wall as a result of structural problems. There are conflicting findings in the literature about these problems especially concerning collagen, elastin and smooth muscle cells content. The aim of this study was to look at the structural abnormalities of varicose veins (with and without valvular incompetence).
Methods: We studied 70 specimens of long saphenous veins from 35 patients (24 with varicose and 11 with normal veins). Two specimens were taken from each vein about 3–4 cm from the saphenofemoral junction. Vein specimens were processed for histological, immunohistochemical and electron microscopic studies. Both qualitative and quantitative analyses were performed to assess the degree of wall changes. Using the image analyzer, contents of collagen, elastin and smooth muscle cells, in addition to intimal and medial thickness, were measured.
Results: Light microscopy revealed statistical significant increase in intimal and medial thickness and collagen content of media and significant decrease in elastin content and smooth muscle optical density in varicose veins compared with normal veins. There was no statistical significant difference between varicose veins with and without saphenofemoral valve incompetence. Electron microscopy showed marked degenerative changes in intima and media as well as the adventitia of varicose veins.
Conclusion: The findings in our study supported the theory of primary weakness of the vein wall as a cause of varicosity. This weakness is due to changes in all layers of the vein wall and disturbance in the connective tissue components and smooth muscle cells.

V09 - 7
A NON-RANDOMISED TRIAL OF ENDOVENOUS LASER THERAPY VERSUS SURGERY IN THE TREATMENT OF VARICOSE VEINS
Mekako I.A., Hatfield J., Bryce J., Heng ST.M., Lee HL.D., McCollum T.P., Chetter C.I.
Academic Vascular Surgical Unit, Hull Royal Infirmary, Hull, England

Objective: Endovenous laser therapy (EVLT) is a new minimally invasive treatment for varicose veins. This study compares early quality of life (QoL) outcomes following EVLT and surgery.
Methods: Two non-randomised groups were studied. EVLT: 70 patients, 33 men, median age 49 (IQR 35–58) years and Surgery (sapheno-femoral junction ligation, long saphenous vein strip and phlebectomy): 62 patients, 19 men, median age 49, (IQR 35–61) years. Patients were assessed prior to, and at 1, 6, and 12 weeks post procedure using the generic QoL Short Form 36 (SF36), disease specific Aberdeen Varicose Veins Questionnaire (AVVQ), and the Venous Clinical Severity Score (VCSS). SF36 analyses 8 QoL domains: Physical Function, Role Physical, Bodily Pain, General Health, Vitality, Social Function, Role Emotional, and Mental Health. Statistical analysis was by Mann -Whitney test, and $P<0.01$ was considered significant. Any baseline differences between the groups were adjusted for by an analysis of co-variance.
Results: Follow-up at 1, 6 and 12 weeks was 100%, 77% and 70% following EVLT and 100%, 85% and 47% following surgery. SF36 scores were significantly better in the EVLT group at 1 week (Physical Function, Role Physical, Bodily Pain, Vitality, and Social Function) and at 6 weeks (Physical Function). At 12 weeks, no significant differences in the SF36 scores were evident between the 2 groups. AVVQ scores were significantly better in the EVLT group at 6 and 12 weeks. VCSS scores were significantly improved in both groups at 12 weeks.
Conclusion: EVLT & surgery provide similar QoL improvements in patients with varicose veins. EVLT however, removes the QoL limitations experienced by patients in the early postoperative period.

V09 - 8
OUR EXPERIENCE OF TREATMENT OF EMBOLOGENIC THROMBOSES OF LOWER LIMB DEEP VEINS
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Scientific Research Institute of First Aid named by N.V. Sklifosovsky, Moscow, Moscow, Russian Federation

Objective: to work out an optimum tactics of surgical treatment of embologenic thromboses of lower limb deep veins.
Methods: Over the period from 2002–2005, Scientific Research Institute of First Aid named by N.V. Sklifosovsky carried out treatment of 362 patients with embologenic thrombosis of lower limb deep veins(195 males and 174 females); among them, 133 were diagnosed with thrombembolia of pulmonary artery(TEPA). The age of the patients varied from 35 to 90 years, which is 62.5 years on average. Newonset thrombosis of lower limb deep veins was diagnosed in 78% of patients, and recurrent one in 22%. An ultrasound duplex scanning of vessels is considered as the basic diagnostic method. In case of suspected TEPA, the radioisotopic scintigraphy was carried out.
Results: In 362 patients, a floating thrombus was detected, including the one in the lower cava in 43 patients, in iliac veins in 189 patients, in common femoral vein in 56 patients, in popliteal vein in 14 patients. Cavafilter was implanted in 271 patients. Cavafilter was implanted in all patients with recurrent thrombembolia, and also in patients with serious concomitant pathology who had a high risk of rethrombosis during the post-surgical period. In 64 patients, the thrombectomy was carried out: of common iliac vein in 4 patientsof external iliac vein in 16 patients of superficial femoral vein and common femoral vein in 42 patients of popliteal vein in 2 patients In 5 patients, the surgery was supplemented by arteriovenous fistulization; in 8 patients, the surgery was carried out after non-indwelling cavafilter implantation; in 5 patients with implanted indwelling cavafilter, the surgery was carried out with a view to ineffectiveness of conservative therapy

and persisting floating thrombus. After the surgery, anticoagulant therapy was carried out, obligatory early activization using medical elastic tricot. Control by ultrasound dopplerography. The reasons of thrombosis in patients who have undergone the surgery generally were traumas of lower limbs (53 patients) and burn disease in 4 patients. During the post-surgical period, parietal rethrombosis developed in 5 patients, without floating thrombi. In 1 patient, one month after the surgery, a floating thrombosis on contralateral side developed due to non-compliance with the recommended anticoagulant therapy. There were no fatalities.

Conclusion: In case of vein thrombosis where floating thrombus is formed with the danger of embolism, a differentiated approach to surgical treatment methods is necessary. The patients with high risk of rethrombosis undergone cavafilter implantation, and those patients whose prognosis was favourable received operative therapy.

16.30-18.30
MAY 13, 3RD CONGRESS DAY

10TH VASCULAR SCIENTIFIC SESSION
VASCULAR ACCESS

V10 - 1
FISTULOGRAPHY IN ARTERIOVENOUS FISTULAE, A USEFUL INVESTIGATION
Lee HL.D., Beleed K., Ray B., Heng ST.M., Mekako I.A., McCollum T.P., Chetter C.I.
Academic Department of Vascular Surgery, University of Hull, Hull Royal Infirmary, Hull, UK

Objective: Fistulography is commonly requested in the investigation of malfunctioning AVFs. The objective of this study was to determine the value of fistulography in a typical tertiary referral vascular unit.
Methods: Between January 2000 and December 2003, 52 fistulograms were performed in 49 dialysis patients (36 males, median age 66 years, 34 hypertensives) who had AVFs created in this period. Most of these were sited in the radiocephalic and brachiocephalic areas and other access included thigh loop grafts, basilica vein transposition and leg-to-arm grafts. Information gathered included data on indication, procedure and outcome.
Results: Fifty-two fistulograms (49 AVFs, 2 PTFE) were performed. Indications for fistulography were difficult needling (25.0%), inadequate dialysis blood flow at dialysis (54.0%) and AVFs not developing adequately (17.3%). Sixteen (30.8%) patients required angioplasty. Outcome: At subsequent follow up (median 17.8 months (IQR 9.8-30.1)), 8 (50%) continued to be used. Thirty-six of initial fistulograms were diagnostic procedures, of which 7 subsequently clotted and 12 continued to be used. A further 3 were referred for repeat vascular access surgery.
Conclusion: Fistulography answers diagnostic questions. In up to third of patients, it may facilitate endovascular intervention with good medium term results.

V10 - 2
AXILLO-ILIAC CONDUIT FOR HAEMODIALYSIS VASCULAR ACCESS
Hamish M., Shalhoub J., Rodd C.C., Davies H.A.
Charing Cross Hospital, London, UK

Objective: End-stage renal failure (ESRF) haemodialysis patients frequently have complex venous drainage problems. Multiple access procedures cause central venous stenosis or occlusion, leaving venous drainage impaired. The consequences are: sub-optimal dialysis access function; and symptomatic facial and limb oedema secondary to brachio-cephalic vein and vena cava involvement. Three main surgical options exist: Anatomical venous bypass procedures, which may require thoracotomy (veno-atrial bypass, extra-anatomic arterio-venous graft (AVG) and extra-anatomic veno -venous drainage bypasses procedures.
Methods: We report eight ESRF patients with complex renal access problems. Three patients had central venous occlusion, which were both symptomatic and compromising arterio-venous fistula drainage. In addition, radiological intervention had been unsuccessful. All these patients underwent veno-venous axillo-iliac bypass. In five further patients with a symptomatic central venous obstruction who run out of peripheral or central vascular access option, we performed axillo-iliac arterio-venous grafting. All patients were assessed pre-operatively with duplex ultrasonography and venography. The axillary artery or vein, and iliac vein were approached via infraclavicular and extra-peritoneal groin incisions, respectively. Polytetrafluoroethylene (PTFE) was used for the conduits. Anti-coagulation regimens were commenced post-operatively.
Results: Following venous diversion surgery, there was a dramatic improvement in the problematic facial and limb swelling experienced by the patients. There was no significant peri-operative morbidity. The veno-venous graft is still patent at 14 months in patient one, at 10 months in patient two, and 5 in patient three. Regarding the AVGs, the mean follow-up was 13.2 (7–20) months. Patency rate was 80% at 6 months and 100% at 12 months. Four patients had patent, usable grafts at twelve months. In two cases, graft occlusion was treated with successful thrombectomy.
Conclusion: Axillary-iliac veno-veno diversion can overcome the symptoms and complications of superior vena cava and brachio-cephalic vein obstruction. Extra-anatomic, axillo-iliac arterio-venous graft fistulae formation is previously described but has not been widely used. However, we have found the procedure to have low morbidity and advocate its use in these complex cases.

V10 - 3
A PATCHPROSTHESIS (VENAFLO(TM)) VERSUS CONVENTIONAL PROSTHESIS FOR DIALYSIS ACCSESS - A RETROSPECTIVE ANALYSIS
Schramayer F.G., Konstantiniuk P., Ott T., Tiesenhausen K., Cohnert T.
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Objective: One of the problems in dialysis access is intimal hyperplasia at the venous anastomosis with consecutive thrombosis of the prothesis. A patchprothesis (Venaflo^{TM}, C.R. Bard, Division IMPRA MEDICA) has been developed to optimize the flow and to reduce the intimal hyperplasia at the venous anastomosis.
Methods: In the period of December 1998 to October 2004 158 patients were treated for a dialysis access. In 78 patients a Venaflo^{TM} was implanted and in 100 further cases a conventional prothesis was used. In both groups the most common configuration was an allograft straight between the brachial artery and the axillary vein and at the thigh an allograft loop between femoral artery and saphenous vein or femoral vein. All procedures were performed in general anaesthesia and under antibiotic prophylaxis. Usually the first puncture was done three weeks after the procedure. In a retrospective analysis all complications, surgical and radiological interventions and occlusions of the dialysis accesses were evaluated.
Results: Primary and secondary patencies of the dialysis accesses were significantly better in the Venaflo^{TM} group.
Conclusion: Type of venous anastomosis clearly influences the patency of vascular access.

V10 - 4
COMPLICATIONS IN ANGIOACCESS SURGERY FOR HEMODILYSIS
Pasternak J.J., Popovic V.V., Pfau J.J., Vukobratov R.V., Avramov S.S.
Clinical Centre - Novi Sad, Novi Sad, Yugoslavia

Objective: To determine the factors affecting early failure and high complication rate of AVFs.
Methods: A retrospective study was conducted analyzing data during six year period on hemodialysis patients with previously created vascular accesses at Clinical Center in Novi Sad.
Results: Five hundred and eighty AVFs were analyzed. There were 216 men and 188 women, with an average age ranging from 21 to 82 years (mean age, 51.39 years). The types of procedures performed included placement of arteriovenous grafts in 12 patients, creation of AVFs in 484 patients and revision of AVFs in 83 patients.
Conclusion: Main risk factors for early failure and high complication rate included: hypothension, diabetes mellitus, cardiac desease, previos temporary catheter insertion. Autologous access is the best angioaccess for dialysis also in all groups of patients and can be performed in most patients.

V10 - 5
THE IMPORTANCE OF PROXIMAL RADIAL ARTERY IN THE STRATEGY OF AUTOLOGOUS ARTERIO-VENOUS FISTULAS
Szeberin Z., Bíró G., Sótonyi P., Acsády G.
Department of Cardiovascular Surgery, Semmelweis University, Budapest, Hungary

Objective: According to DOQI guidelines most vascular surgeons would choose elbow fistula as a secondary procedure, if the Cimino fistula fails or cannot be created. As population ages and more chronically ill patients need haemodialysis, long term planning of arterio-venous (A-V) fistulas are critical to maintain A-V access. Our study show favourable results using proximal radial artery as inflow vessel for A-V shunts preserving brachial artery for a later procudeure.
Methods: Between 1997 and 2005 we created more than one thousand A-V fistulas for hemodialysis in a tertiary care center in Hungary. In 98 cases we performed antebrachial fistulas. The operation was performed under local anesthesia as a standard end-to-side arterio-venous anastomosis. Operative data were collected from the chart, patency data were gathered from the dialysis centers retrospectively.
Results: Mean age was 56.8 years. Central venous catheters were inserted in 28.2% of the patients and 37.6% of them were diabetic. Physical examination and Doppler ultrasound test was almost always enough to determine, if the creation of a distal to elbow fistula is possible. Average follow-up was 36 months. Primary patency rate at one and two years were 95 and 91%, respectively. Infection and ischemic complications were not noticed in this patient group.

Conclusion: Our results shows comparable patency results to elbow fistulas and preserve it for a later time. We continue to perform these proximal and middle third radial artery to cephalic vein fistulas as a part our all autologous fistula strategy so upper arm fistulas and prosthetic graft implantation could be postponed.

V10 - 6

ENDOVASCULAR MANAGEMENT OF ARTERIO-VENOUS FISTULA STENOSES

Swinnen J.
Westmead Hospital, Sydney, Australia

Objective: To demonstrate the effectiveness of endovascular techniques in developing and maintaining native Arterio-Venous Fistulas (AVF).
Methods: Over the last 5 years at our institution, the operator has performed over 300 AV Fistuloplaties to develop and maintain patency of native AVF. 0ver 90% of the AVF in our practice are native. Diagnosis of AVF problems is performed primarily with Duplex U/S prior to intervention. Techniques include balloon angioplasty, cutting balloon angioplasty and stenting of the inflow artery, the fistula vein and the outflow central venous drainage vein. Controlled rupture of the fistula vein in about 20% of cases is necessary to effectively destroy the stricture ring, and produces excellent results. Over 90% of procedures are performed as day case surgery, under local anasthetic±sedation. The fistula can generally be used for dialysis within hours post intervention.
Results: Over the last 5 years at our institution, the operator has performed over 300 AV Fistuloplaties to develop and maintain patency of native AVF. 0ver 80% of the AVF in our practice are native. Diagnosis of AVF problems is performed primarily with Duplex U/S prior to intervention. Techniques of intervention include balloon angioplasty, cutting balloon angioplasty and stenting applied to the inflow artery, the fistula vein and the outflow central venous drainage vein. Controlled rupture of the fistula vein in about 20% of cases is necessary to effectively destroy the stricture ring, and produces excellent results. Over 90% of procedures are performed as day case surgery, under local anasthetic±sedation. The fistula can generally be used for dialysis within hours post intervention.
Conclusion: Native AVF problems can be successfully treated with endovascular techniques as day case local anasthetic procedures in over 90% of cases. Complications are very uncommon. Repeat procedures are necessary in a significant number of cases to maintain long-term patency.

V10 - 7

THE UK NATIONAL SERVICE FRAMEWORK FOR HAEMODIALYSIS VASCULAR ACCESS: THREE YEARS IN

Lee HL.D., Beleed K., Ray B., Heng ST.M., Mekako I.A., McCollum T.P., Chetter C.I.
Academic Department of Vascular Surgery, Hull, England

Objective: Renal Association Guidelines (2002) used in the National Service Framework (NSF) for the National Health Service (NHS) recommend: At least 67% of patients presenting within 3 months of dialysis should start HD with a usable native AVF. No patient already requiring dialysis should wait more than 4 weeks for fistula construction including those who present late. The study objective was to examine local figures and demonstrate the compliance with NSF guidelines.
Methods: Two hundred and eighty patients (172 men, median age 65 years, 76 diabetic, 217 hypertensive) had AVFs created between January 2000 and December 2003. We extracted patient data from our departmental electronic database and supplemented this with information from patient notes. Information gathered included data on demography, procedure and outcome.
Results: Two hundred and forty four patients commenced haemodialysis during this period, of which 161 had been known to the dialysis services for at least 3 months prior to haemodialysis. Of these 161 cases, 62 (38.5%) started dialysis through a patent AVF in the 3 months post-referral period. 266 of 401 AVFs (66.3%) waited more than 4 weeks for procedure. Median time for referral to surgeons was 178 days (6 months) [IQR 93-328 days]. Length and variability of waiting times resulted from individual referrals and lack of access to imaging facilities.
Conclusion: Three years after the guidelines were issued, the proportion of patients receiving haemodialysis therapy remains unsatisfactory. Delays in referral may contribute to low rates of patients commencing haemodialysis on AVFs. Further study including numbers from other units in the United Kingdom will demonstrate the extent of difficulties. A national registry may be necessary to help meet NSF targets.

09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

11TH CARDIAC SCIENTIFIC SESSION
TRANSPLANT - HEART FAILURE II

C11 - 1

AUTOLOGOUS INTRACORONARY MONONUCLEAR BONE MARROW CELL TRANSPLANTATION IN PATIENTS WITH DILATED CARDIOMYOPATHY

Nemkov A.S., Sedov V.M., Afanasyev B.V., Zverev O.G., Belyj S.A., Shlojdo E.A., Ryzhkova D.V.
St-Petersburg State Pavlov Medical University

Intracoronary infusion of stem cells was performed in 8 patients with severe heart failure due to dilated cardiomyopathy during coronary angiography. On average, each patient received 510±170 mln nuclear-containing cells, among them 130±80 mln mononuclear cells and 1.6±0.8 mln CD34+ cells. We observed clinical improvement in all 8 patients with decreasing of the functional class of heart failure from the III-IV stage (NYHA) to the II stage. Echocardiography revealed dimension of end-diastolic diameter of LV (5 of 7 pts) and dimension of end-systolic diameter (7 of 7 pts) and augmentation of global LV ejection fraction (7 of 7 pts).
Positron emission tomography (PET) and single-photon emission computer tomography (SPECT) study of myocardium showed improvement of perfusion and metabolic myocardial activity in patients after 6-12-18 months follow up. Stabilization in clinical and PET (SPECT) data were observed during 1 year follow-up.
Conclusion: autologous bone marrow cell therapy is a potentially feasible and safe approach for the restoration of myocardium in patients with dilated cardiomyopathy.

C11 - 2

CARDIAC FATE OF MURINE ADIPOSE TISSUE-DERIVED CELLS IN ACUTE MYOCARDIAL INFARCTION

Léobon B., Planat-Bénard V., Chanut C., Ménard C., Pucéat M., Pénicaud L., Casteilla L.
UMR 5018 CNRS UPS, IFR31, CHU Rangueil, Toulouse, France; UMR 5018 CNRS UPS, IFR31, et Service de CCV B, CHU Rangueil, Toulouse, France; CRBS, CNRS FRE2593, Montpellier, France

Objective: An adult autologous and abundant source of cells able to regenerate impaired myocardium is still missing. We previously demonstrated the in vitro potential of stroma vascular fraction (SVF) from mouse adipose tissue to differentiate into cardiac-like cells. The aim of this in vivo study was to assess their cardiac fate in a murine model of acute myocardial infarction.
Methods: Male GFP-mice were used to harvest adipose tissue to prepare SVF cells then cultured and expanded in vitro. Immediately after left descending coronary artery ligation, 100 000 cardiaccommitted cells derived from cultured SVF were injected in the ischemic area of 23 mouse female hearts. Animals were sacrificed at day 7, 14 and 28 and hearts removed for morphological, immunohistological and FISH studies.
Results: A strong engraftment of GFP-expressing cells after 7, 14 and 30 days was observed in most of these hearts (20/26, 87%). These cells had a cardiac morphology and expressed MLC-2v and Troponine T. FISH experiments have excluded fusion of GFP-expressing cells with native cardiac myocytes.
Conclusion: This study demonstrates that large amount of cardiac-committed cells can be obtained from mouse adipose tissue and that after engraftment they express a cardiac phenotype. These results open the way to functional preclinical studies.

C11 - 3

IN VITRO FUNCTIONAL EVALUATION OF DIFFERENT ISOLATION TIME POINTS FOR BONE MARROW-DERIVED STROMAL CELLS PRIOR TO CARDIOMYOCYTE DIFFERENTIATION

Durdu S., Akar A., Ozcinar E., Baran C., Akcali K., Ugur M., Corapcioglu T., Ozyurda U.
Department of Cardiovascular Surgery, Ankara University School of Medicine, Ankara, Turkey; Department of Molecular Biology and Genetics, Bilkent University, Ankara, Turkey; Department of Biophysics, Ankara University School of Medicine, Ankara, Turkey

Objective: A novel therapeutic option for the treatment of acute myocardial infarction involves the use of stem cell plasticity. Methods for in vitro isolation of rat bone-marrow stromal cells (MSCs) have been well established. After culturing under defined in vitro conditions for 14 days, MSCs can differentiate into cardiomyocyte, adipocyte, osteocyte and chondrocyte upon applying certain trophic factors. However, the duration of culture can be a major handicap for cell-based therapies in the case of acute myocardial infarction or acute hind-limb ischaemia.
Methods: MSCs were isolated and expanded from bone-marrow aspirates of adult rats. We repeatedly screened rat MSCs colony forming capacity, CD90 and CD34 immuno-reactivity and Ca+2 responses during course of 14 days of culture. The cells showed a fibroblast-like morphology and started to form colonies at day 7. The cells within the colonies but not in the periphery became positive for CD90 at day 9. They were stained negative for CD34 antibody from the 5th day of culture.
Results: Furthermore, Ca+2 responses of MSCs were compared that are within vs. outside the colonies and to different stimuli including caffeine application and depolarization at 9th and 14th day of culture. We observed that caffeine (10 mM) application and depolarization with KCl (105 mM) did not evoke any Ca+2 responses in MSCs on their 9th and 14th day of culture. However, they responded to extra cellular ATP (10-4 M) application with a clear Ca+2 transient. Ca+2 response characteristics were the same in colony forming and peripheral cells. These results indicate the absence of any functional ryanodine receptor in rat MSCs and also demonstrate that these cells do not differentiate to any cell but clearly exert the characteristics of MSC by the 9th day.
Conclusion: MSC cardiomyoplasty may have a significant clinical potential in the myocardial infarction setting. Nine days of in vitro isolation of MSCs may be adequate if myogenic differentiation is warranted. Shortening the culture time for nearly 5 days could be a very useful tool for the patients awaiting urgent cell-based therapeutic options. This research has been supported by grants from Ankara University and Bilkent University Research Funds.

C11 - 4

CLINICAL TRIAL OF SUBXIPHOID PERICARDIOTOMY FOR CELL THERAPY OF CARDIO PATHOLOGY

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Saint-Petersburg State Medical Academy named after I.I. Mechnikov, Saint-Petersburg, Russian Federation

Objective: One of the possibilities for treatment of end stage coronary disease is cell therapy. Methods of cell therapy differ by cell type, quantity of cells and ways of delivery. The most reliable way of cell delivery is direct intramyocardial injection, which requires thoracotomy or sternotomy. That is why mini invasive approaches for intramyocardial injection are required.
Methods: Eight patients (6 men and 2 women) with end stage coronary diseases were enrolled in clinical trial. The diagnosis was made on clinical, angiology and MRI findings. On the base of experimental results obtained from comparison of mini invasive transthoracic pericardiotomy on human cadavers we made a choice of subxiphoid pericardiotomy. The subxiphoid pericardiotomy with video assistance has been performed in all eight patients. Autologous bone marrow mononuclears CD34+2*10(6)±2.4*10(6) were directly injected in ischemic segments of myocardium by means of injector with 22 G (BD) 0.5 ml per injection, mean number of injection 10±2. Injection was performed directly in myocardium of left and right ventricle. Scanning with Tc99m was performed in all patients before operations, and we expect in 1, 3 and 6 month follow-up for investigation and comparison of perfusion. Wall motions of myocardium, global left ventricular ejection fraction and end -systolic left ventricular volumes were investigated by Echo-ECG before operation and we are waiting in 1, 3 and 6 month follow-up. SF-36 is used as method of clinical assessment of results.
Results: There were no complications during subxiphoid pericardiotomy and in short term after operation. In 7 patients operation was performed under general anesthesia. In 1 patient subxiphoid approach was performed under local anesthesia because of severe heart insufficiency. Scanning with Tc99 m before operation revealed perfusion disorders (approximately 53±4.4%) in all 8 patients. The global left ventricular ejection fraction was (59.1±5.2% $P = 0.001$) also before operation. The regional wall motion was (-1.5±0.4; $P<0.001$) of left ventricle. There were no complications during operative procedure and in short term. Now we are waiting for clinical and Echo-ECG data of our operation. We expect 6 month follow-up by May 2006. We will report results by May 2006.
Conclusion: Subxiphoid pericardiotomy is possible and clinically applicable mini invasive approach for intramyocardial cell delivery in patients with end stage coronary diseases. We did not reveal any complications during operation

and short term follow up. But limited number of patients and short term are not enough for conclusion.

C11 - 5

NEW SYSTEM FOR REPLACEMENT OF ECMO/ECLS WITHOUT INTERRUPTION OF ASSISTANCE

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Objective: Replacement of Extracorporeal Membrane Oxygenation (ECMO) or Extracorporeal life support (ECLS) stays dangerous with high risk of cardiac or hypoxic arrest in instable situations. We have developed a new system which allows easily changing of cardiac or cardio-pulmonary support without interruption of the assistance. We have used this new device to confirm the feasibility and advantages in term of security for our patients.
Methods: We have used the device in four patients: in two cases, after cardiac surgery (ECLS), in one case during an ECMO for pulmonary failure after blunt chest trauma and in one case after a cardiac infarction without low cardiac output and respiratory failure (ECMO). Our device realize by a medical laboratory is completely heparin bonded. For these four patients 7 replacements of cardiac or cardio-pulmonary supports have been realized and analyzed in detail.
Results: For all support replacements no cardiac arrest has been noticed and no increase of inotrope cardiac support is needed. Analyses of arterial pressure monitoring, electrocardiogram, oxygenation or neurological status show an absence of any modification during and after these procedures. No specific morbidity has been found especially in term of thrombo-embolic event. For the fourth patient, we have replaced, without any problem, his cardiac support in the ambulance during his transfer to allow a cardiac transplantation. The patient was conscious during all the procedure and no neurological trouble has been noticed.
Conclusion: This new circuit is useful to replace ECLS or ECMO without any risk for the patient. His manipulation is easy and safety even in instable conditions. No complication, cardiac arrest or death has occurred during replacement. This kind of modification can be simply realized with all commercial actual ECLS or ECMO circuit without extra cost. In summary we think that this simple modification can improve, at list, results of ECMO/ECLS supports by decreasing of adverse events during the assistance.

C11 - 6

CARDIAC OPERATIONS IN HEMODIALYSIS PATIENTS: MID TERM RESULTS AND ANALISYS OF RISK FACTORS

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Objective: To evaluate early- and mid-term results in hemodialysis-dependent patients who underwent open heart surgery in our department, with multivariate analysis of major risk factors.
Methods: We retrospectively reviewed 29 consecutive patients on maintenance hemodialysis who were operated on in our Department from March 1998 to July 2005. Nineteen patients (65.5%) were male and the mean age was 63.9 years ±11.4. Mean duration of dialysis was 74.9 months ±70.1. Thirteen patients (44.8%) were operated on non-elective status, due most often to unstable angina. The most frequent types of operation performed were isolated CABG (18 patients; 62.1%), isolated AVR (4 patients; 13.8%) and AVR+MVR (3 patients; 10.3%).
Results: The in-hospital mortality was 10.3% (3 of 29 patients). Two of the 3 deaths were due to bowel ischemia. In-hospital morbidity was 44.8% (13 of 29 patients), mainly due to prolonged mechanical ventilation (17.2%), minor neurological complications (10.8%), sepsis (10.3%) and postoperative bleeding requiring reintervention (6.9%). Mean extracorporeal circulatory time was 92.2±36.1 min, whereas mean clamping time was 59.8±27.5 min. Late deaths (n = 10) occurred 2 to 56 months after the operation. Main cause of late deaths were congestive heart failure (n = 4), infective problems (n = 3) and acute myocardial infarction (n = 2). One patient underwent renal transplantation 33 months after the operation. Overall survival estimates at 1, 3 and 5 years were 68.4±8.7%, 57.4±10.2% and 31.9±15.4%, respectively. Freedom from cardiac death among the 26 hospital survivors at 1, 3 and 5 years was 86.3±7.4%, 78.5±10% and 43.6±20.3%, respectively. Quality of life subjectively improved in 89% of patients in follow-up telephone survey. At the multivariate analysis for in-hospital mortality, postoperative bowel ischemia and sepsis resulted to be independent risk factors for early mortality (P = 0.014; O.R.: 50. both).
Conclusion: These data are comparable to those in the literature and confirm the high operative and long term mortality of cardiac operations in patients with renal replacement therapy. However the operations allow an improvement of functional status and let possible duration of dialysis. Careful management during cardiopulmonary bypass procedures and the immediate post-surgical period could possibly improve the early results. Moreover, avoidance of relative hypovolemia could probably reduce the incidence of gastrointestinal complications. Interestingly, non-elective preoperative status and advanced functional class did not resulted to be independent risk factors for early nor late mortality.

C11 - 7

LEVOSIMENDAN IN PATIENTS WITH LOW CARDIAC OUTPUT AFTER CARDIAC SURGERY: THE FIRST EXPERIENCE

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Objective: to determine the effects of new inotropic agent levosimendan in patients with low cardiac output after cardiac surgery.
Methods: Fifteen adults and 4 pediatric patients received levosimendan infusion for low cardiac output after multiple valve replacement, coronary bypass with left ventricle reconstruction and arterial switch operation. Indications for levosimendan were the following: CI<2 l/min/m^2 not responding to high doses of catheholamines and IABC in adults and LVEF< 25% despite catheholamines or phosphodiestherase III inhibitors in children. Adult patients received the loading dose 12 μg/kg during 10 min and the infusion of 0.1 μg/kg/min next 6-12 h. In pediatric patients (10 days to 2 years old) the loading dose was increased to 24 μg/kg during 10 min and supportive dose 0.1 μg/kg/min was infused during next 24 h. We used thermodilution for the assessment of hemodynamic values in adults and echocardiography in children. We also controlled the possible side effects.
Results: All adult patients demonstrated significant increase in CI by 50-150% from 1.6 to 4.2 l/min/m^2 and SV from 34 to 74 ml. Meanwhile systemic vascular resistance fell from 1478 to 845 dyn/s/cm^5, CVP, PWCP and PAP also decreased, but mean arterial pressure increased from 55 to 78 mmHg. Pulmonary vascular resistance did not change significantly. Such hemodynamic improvement was manifested with decreasing cathecholamine dependency and allowed to soften IABC regimen. Three patients with basic systemic vascular resistance less then 900 dyn/s/cm^5 developed arterial hypotension and required intensive volume load. Polytopic polymorphic ventricular tachycardia was occurred during the first hour of levosimendan infusion in 2 cases (both patients were successful treated with amiodaron). All the children responded to levosimendan infusion with increase in left ventricular EF from 22 to 36% and decrease in LAP from 21 to 13 mmHg. One patient received levosimendan before total cardiopulmonary bypass with ECMO during 4 days was stopped. The other patient was required levosimendan infusion twice within 9 days with evident hemodynamic improvement. We didn`t observe any rhythm disturbancies and significant systemic hypotension in pediatric patients.
Conclusion: Levosimendan infusion proves to be of great benefit in adult patients and children with low cardiac output after cardiac surgery, but further researches are required to determine indications and dose regimens in these groups of patients.

C11 - 8

THE USE OF BIVENTRICULAR PACEMAKER AS A COMPONENT OF MULTIMODALITY THERAPY FOR CONGESTIVE HEART FAILURE IN CARDIAC SURGERY PATIENTS

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Objective: Biventricular pacing is emerging as a successful non-pharmacologic adjunctive therapy for the treatment of severe congestive heart failure. The purpose of this study was to investigate the utility of biventricular pacing for treatment of significant congestive heart failure following cardiac surgery.
Methods: Since 2002, a cohort of thirteen patients at our institution have undergone placement of a biventricular pacer for the treatment of congestive heart failure at the time of major cardiac surgery-valve repair or replacement with or without coronary artery bypass grafting. In retrospective fashion, the severity of each patient's congestive heart failure was

assessed pre-operatively and postoperatively using left ventricular ejection fraction and New York Heart Association class.
Results: Pre-operatively, all patients had New York Heart Association class III or IV status and the mean ejection fraction for the group was 23± 2%. Post-operatively, all the patients had improved to New York Heart Association class I or II. In addition, the mean ejection fraction had significantly increased to 39±3%. The data were analyzed using a paired t-test and found to be statistically significant ($P < 0.05$).
Conclusion: Patients with severe congestive heart failure and impaired ejection fraction can benefit significantly from biventricular pacing after major cardiac surgery. Biventricular pacing should be considered a valuable component of the multimodality therapy for congestive heart failure in such patients.

09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

12TH CARDIAC SCIENTIFIC SESSION
GENERAL

C12 - 1

EUROPEAN WORK TIME DIRECTIVE. HOW TO IMPROVE CARDIOTHORACIC TRAINING FOR SPR AND SHO

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Objective: Reduction in surgical training time due to EWTD mandates review of the use of training time. The activity of cardiothoracic SpRs on Cardiac Intensive Therapy Unit (CITU) was audited. Study aims were to identify any potential benefits in cardiothoracic training, to investigate mechanisms of comunication between CITU staff and overall effect on patient care.
Methods: All calls from CITU to surgical SpRs were assessed by nurses and surgeons (n = 120). All calls were classified as: routine (predicted, non urgent), urgent (non life threatening) or emergency (surgical, life threatening) A dedicated questionnaire based on most common postoperative complications was devised to examine knowledge of CITU staff (surgical and anaesthetic SpRs, surgical SHOs and CITU senior nurses). Results were analyzed and statistical comparison was made using t test.
Results: Most calls during the day were routine (n = 97, 81%). Urgent calls (n = 18, 15%) were less common, most were during the night (n = 13, 73%). In 5 of cases surgical attention was necessary (4%) and in 2 cardiothoracic SpR needed to be involved taking patient to the theatre (1.6%). There was a significant difference in nature of calls between night and day. There was statistical difference in results of questionnaire between SHO and other groups (P<0.01)
Conclusion: Our study indicated that there is no need for cardiothoracic SpRs to be resident on CITU during the daytime. For surgical SHO there is an opportunity to improve critical care knowledge and skills Support of anaesthetist and senior nursing staff can provide safe patient care in CITU.

C12 - 2

VALIDATION OF THE 2000 BERNSTEIN-PARSONNET SCORE VERSUS THE EUROSCORE AS A PROGNOSTIC TOOL IN CARDIAC SURGERY

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Objective: Intra- and interdepartmental benchmarking requires scoring systems with reliability (calibration) and stability over the complete spectrum of peri-procedural risk. The aim of this singlecenter study was to asses, for the first time, the performance of the 2000 Bernstein-Parsonnet risk stratification model in cardiac surgery, by itself and against the EuroSCORE.
Methods: A prospective observational design was used. The study group consisted of 1639 consecutive patients of mean age 64.6±12.04 years who underwent elective or emergency cardiac surgery from January 2003 to June 2004. The probabilities of hospital death were estimated with the 2000 Bernstein-Parsonnet and EuroSCORE algorithms. The correlation of predicted and observed mortality was compared between the 2 models, and score validity was assessed by calculating the area under the receiver operating characteristic (ROC) curve.
Results: The patients were stratified into 5 risk groups according to their scores in the two models. For the 2000 Bernstein-Parsonnet model, findings were as follows: score 0-10: predicted mortality 02.2%, observed mortality 0.6%; score 10.5-20: predicted 2.3-4.7%, observed 2.3%; score 20.5-30, predicted 4.8-10%, observed 6.7%; score 30.5-40, predicted 10.1-23%, observed 11.5%; and score >40: predicted 23.1-80%, observed 29.9%. For the EuroSCORE, findings were as follows: score 02%: predicted mortality 1.1%, observed mortality 0.6%; score 3-5%, predicted 2.1%, observed 3.0%; score 6-8%, predicted 4.1, observed 3.5%; score 9-11, predicted 7.6, observed 6.6.%, and score >12, predicted 13.8%, observed 14.0 There was good agreement between the observed and expected number of deaths, with both models. The area under the ROC curve was higher for the Bernstein-Parsonnet model (0.83, OR 2.01, 95% CI 1.75-2.31, P<0.0001) than for the EuroSCORE (0.73, OR 1.05, 95% CI 1.04-1.07, P<0.001).
Conclusion: The 2000 Bernstein-Parsonnet model is a simple, objective system for the estimation of hospital mortality in patients undergoing cardiac surgery, with slightly higher calibration and discrimination than the EuroSCORE additive model.

C12 - 3

RISK STRATIFICATION IN CARDIAC SURGERY: THE SEARCH BETWEEN SIMPLICITY AND PRECISION

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Objective: To find out the optimal risk stratification system for cardiac surgery. To verify EuroSCORE variables in terms of both their impact and their number.
Methods: Single centre study. Typical development set/testing set approach was applied. The first sample included 1263 patients undergoing cardiac surgery in 2001–2002 (development set). The second one included 1244 patients operated on in 2004 (testing set). Two systems were used to assess the mortality risk in both groups:
1. original logistic EuroSCORE 2. simple logistic model using five basic risk factors recognized in most previous studies (age, gender, redo surgery, emergency surgery, LV function) The discrimination and calibration of both models were checked by ROC curve analysis and Hosmer-Lemeshow goodness of fit test respectively. The same analysis was performed for isolated CABG patients.
Results: The Hosmer-Lemeshow test proved satisfactory calibration for both systems in all groups. The area under ROC curve reached the following values: Development set, all (n = 1263): EuroSCORE 0.76 simple model 0.71 Testing set, all (n = 1244): EuroSCORE 0.81 simple model 0.72 Development set, CABG (n = 928) EuroSCORE 0.74?simple model 0.71 Testing set, CABG (n = 818) EuroSCORE 0.82 simple model 0.66.
Conclusion: EuroSCORE despite quite satisfactory performance does not remain the only alternative in risk stratification. It is remarkable that the simple model containing just five core risk factors can offer very satisfactory prediction which could be easily applied in everyday prac-tice.

C12 - 4

ROBOTICALLY-ASSISTED TOTALLY ENDOSCOPIC ASD REPAIR: INSIGHTS FROM OPERATIVE TIMES, LEARNING CURVES AND CLINICAL OUTCOME

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Objective: Remote-access perfusion and robotics have enabled totally endoscopic closure of atrial septal defect (ASD) and patent foramen ovale (PFO). We report on a stepwise approach to a totally endoscopic procedure.
Methods: Seventeen patients (median age, 35 years; range, 16-55 years) with the diagnosis of and ADS II or a PFO and PFO and documented neurologic event, were operated on for ASD-repair on a totally endoscopic fashion using the da Vinci telemanipulation system. Learning curves and operative times were assessed by means of regression analysis. The effect of operative parameters on clinical outcome was analyzed by calculating the Spearman's rho coefficient.
Results: With the endoscopic approach, significant learning curves were noted for total operative time (y(min) = 406-49*ln(x), r^2=0.725, P = 0.002), cardiopulmonary bypass time y(min) = 225 - 42 * ln(x) (r^2= 0.699, P = 0.003) and aortic cross-clamp time y(min) = 117 - 25 * ln(x) (r^2= 0.52, P = .04) (x = number of procedures). There was no hospital mortality, and no residual shunts were detected at postoperative echocardiography. Median ventilation time, intensive care unit stay, and hospital length of stay were 6 h (range, 3-18 h), 20 h (range, 15-120 h) and 8 days (range, 5-14 days), respectively. No correlation was found between bypass time and ICU-saty, intubation time or total length of stay.
Conclusion: The implementation of robotic totally endoscopic closure of ASD or PFO in a heart surgery program seems to be safe. Learning curves are apparent, and clinical parameters and adequate defect closure does not seem to be compromised by the long operative times needed for the totally endoscopic approach.

C12 - 5

SMALL ACCESS (30 F) CLINICAL CENTRAL VENOUS CANNULATION: IS IT ADEQUATE?

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Objective: Standard cardio-pulmonary bypass for adults with central cannulation of the right atrium and the inferior vena cava in combination with gravity drainage usually requires two-stage cannulae with a circumference between 45 F and 51 F. The present study was designed to assess whether there is difference with regard to drainage capacity between a 45 F vs. a 36 F self-expanding smartcanula™ (www.smartcanula.com).
Methods: Twenty adult patients undergoing open heart surgery with central cannulation were randomly assigned to two groups receiving for venous drainage a smartcanula™, which was collapsed for trans-atrial insertion into the inferior vena cava to 15 F and expanded in situ, either to 45 F (connecting to ½") or to 36 F (connecting to 3/8"). CPB was realized in standard fashion with a ½" venous line, a hard shell venous reservoir, a roller pump, a membrane oxygenator and a 3/8" arterial line connected to a 24 F aortic cannula.
Results: The patients underwent valve replacement/repair in 7/10 and CABG in 6/10 for 36 F (69±13 years) vs. 5/10 and 5/10 respectively for 45 F (63±11years). Body weight and surface area (BSA) were 83±9 kg (1.9±0.2 m^2, max 2.2m^2) for 36F vs. 79±6 kg (1.9±0.1 m^2, max 2.1 m^2) for 45 F: NS. Target pump flow was 4.7±0.4 l/min for 36 F vs. 4.5±0.3 l/min for 45 F: NS. Achieved pump flow accounted for 5.0±0.3 l/min for 36 F (8% above target) vs. 4.8±0.3 l/min for 45F (8% above target): NS. Volume requirements during the pump run was 2.2±0.3 ml for 36F vs. 2.0±0.4 l for 45F: NS.
Conclusion: Due to its "open" wall (the atrium and the inferior vena cava provide the seal), its reduced wall thickness (range: 0.00 to 0.36 mm), and its self-expanding design, the 36 F smartcanulaTM requiring a 30F access orifice (10 mm) has sufficient drainage capacity by gravity alone for full CPB in adults with a BSA up to 2.2 m^2. There is no need for ½" venous cannula and the corresponding large atrial access aperture.

C12 - 6

IS CARDIAC SURGERY APPROPRIATE IN BARIATRIC PATIENTS?

Villavicencio A.M., Sundt M.T., Dearani A.J., Zehr J.K., Daly C.R., McGregor G.A.C., Mullany J.C., Orszulak A.T., Puga J.F., Schaff V.H.
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Objective: With the marked increase in numbers of patients suffering from extreme obesity and its associated cardiovascular complications, one can anticipate an increasing demand for cardiac surgery in this challenging population. The results of cardiac surgery in bariatric patients with a BMI >50 (body mass index: kg/m^2), however, have not been established. We hypothesize that acceptable results could be achieved with a customized approach.
Methods: Between 1993 and 2004, we performed adult cardiac surgical procedures in 57 patients with BMI>50. The mean age of the study group was 55±12 years and mean BMI 54±4 (weight range: 124-226 kg). Obesity related comorbidities were common including diabetes mellitus 29(51%), hypertension 40(70%), hyperlipidemia 22(39%), and obstructive sleep apnea 16(28%). Special equipment utilized included a Chevron internal thoracic artery retractor, Airpal® (for patient transfer); Medi-Chair® (for mobility); Eclipse® Ultra Mattress (to avoid pressure ulcers); and V-Cue® Mattress (for respiratory therapy). Sternal closure was routinely performed using Myo/Wires II™ to prevent sternal dehiscence. To assess the influence of obesity on perioperative mortality, a comparison of 8534 patients undergoing isolated CABG at our institution during the same time interval was performed by multivariate risk analysis.
Results: The perioperative mortality for the entire study group (n = 57) was 4 patients (7%), and 0% for isolated CABG. Prolonged intubation (>24 hrs) was required in 11(20%), surgery for wound complication in 3(5%), stroke in 1(2%), and re-exploration for bleeding in 1(2%). The length of hospital and ICU stays was 13±21 and 5±9 days, respectively. Survival at 1, and 5 years was: 93±-4%, and 76±8%, respectively. On univariate analysis for patients with BMI>50: age, hypertension, and endocarditis were risk factors of mortality. BMI>54 was predictor of renal failure and prolonged intubation. When multivariate analysis was performed on only isolated CABG patients (8534), BMI<20, BMI>30, BMI>40, and BMI>50 were not predictors of perioperative mortality. BMI remained insignificant when considered as a continuous variable as well. However, age, ejection fraction, urgent/emergent operation, and renal failure were strongly associated with perioperative death.
Conclusion: Cardiac surgery could be performed in bariatric patients with acceptable results, however, prolonged intubation is relatively common and accordingly ICU stay may be prolonged. Wound complications are also relatively common. Special equipment might be necessary for proper care. Increased resource utilization may be anticipated for these patients.

C12 - 7

THE EFFECT OF HIGHER CARDIAC INDEX DURING HYPOTHERMIC CARDIOPULMONARY BYPASS ON HEPATIC BLOOD FLOW AND POST CABG SYSTEMIC INFLAMMATORY RESPONSE

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Objective: Reduced splanchnic blood flow during hypothermic cardiopulmonary bypass (CPB) contributes to post cardiac surgical systemic inflammatory response. Dopamine analogs can improve splanchnic perfusion in the post operative period with increased cardiac index. We hypothesised that maintaining a higher cardiac index during hypothermic cardiopulmonary bypass would increase splanchnic perfusion and reduce inflammatory response.
Methods: Twelve consecutive patients with good LV function, undergoing elective/urgent CABG were included in a prospective randomised study comparing normal flow (NF) Vs high pump flow (>20% higher cardiac index) (HF group) during hypothermia. Hepatic blood flow was measured using the Indocyanine green dye disappearance rate before, during and 4 hrs post operatively. Inflammatory markers (IL1-ß, IL-6, IL-8, IL-10, IL-12 and TNFa) and compliments C3a, C4a, C5a a were measured. Repeated measures ANOVA test was used to compare timed samples.
Results: Both groups were comparable with regards to the pre and intra operative variables Hepatic blood flow increased by 100% in the HF group during hypothermia (P = 0.026). Mean blood pressure during hypothermia and usage of metaraminol was higher in the HF group (not significant: P = 0.275; 0.09 respectively). Inflammatory markers C3a, C4a, C5a, IL-6 and IL-8 showed attenuation in the HF group, (but statistically not significant). Other inflammatory markers were variably elevated precluding comparison between groups.
Conclusion: Hepatic blood flow can be augmented during hypothermic cardiopulmonary bypass by using a high pump flow (higher cardiac index). Whether this translates into reduction in the post operative systemic inflammatory response needs larger studies.

C12 - 8

CLINICAL PATHWAYS: AN APPROPRIATE INSTRUMENT FOR PROCESS OPTIMISATION AND COST CONTROL?

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Objective: The implementation of lump-sum remuneration in Germany (DRGs) demands standardised treatment to streamline processes and optimise interfaces. To succeed, it's essential to offer high quality and efficient treatment services focussing on patients in the regional health market. The objective of this study was to evaluate if the use of clinical pathways would prove to be a costeffective tool for hospitals in the DRG-system.
Methods: Two clinical pathways (CABG and valve-operations) were used in our department from April 2005 until August 2005. The documentation of the clinical pathways was integrated in patient charts as a "two-in-one-solution", in which the pathway is subjected to a timetable and monitored continuously. 211 patients were used as a control group from April 2004 until August 2004.
Results: The treatment of 147 patients (84 CABG and 63 valve-patients) was carried out via clinical pathways. Clinical pathway inclusion was 89.1%. Via timely scheduling of therapy and diagnosis, followed by early discharge according to clinical pathways, hospital stay was reduced. Median periods (days) of pathway-patients were shortened: preoperative-stay (1.08±1.31 vs. 1.02 ±1.16), ICU-stay (2.17±2.52 vs. 1.92±1.94), postoperative-stay (8.01±3.05 vs. 7.11±3.01) and total in hospital-stay (14.0±4.52 vs. 12.0±5.01). The fusion of pathway and patient chart reduced the complexity of documentation, which enhanced employee acceptance and clinical pathway inclusion.
Conclusion: Implanting clinical pathways makes it possible to treat more patients, and the optimised integration of resources saves money. Clinical pathways can improve interdisciplinary teamwork and offer opportunities for integrated forms of organisation, allows precise assessment of clinic costs and augments medical care via direct, streamlined processes.

09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

12TH BIS CARDIAC SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

C12b - 1

DETERMINANTS OF GASTROINTESTINAL COMPLICATIONS IN CARDIAC SURGERY

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Objective: The aim of this study was to define the determinants of gastro-intestinal (GI) complications after cardiac surgery.
Methods: From January 1996 to December 2000, 2802 patients underwent cardiac surgery on cardiopulmonary bypass at our institution. Data were prospectively collected and univariate and multivariate analysis conducted on more than 60 different pre-per and postoperative variables
Results: Sixty-two GI complications occurred (2.21%). These complications were presented by: GI haemorrhage in 46 cases (1.64%), intestinal ischemia in 6 cases (0.21%), Pancreatitis in 2 cases (0.07%), cholecystitis in 2 cases (0.07%) and ileus or colectasie in 6 cases (0.21%). A univariate and multivariate analysis identified 6 independent predictors of GI complications: Redo cardiac surgery (OR= 20.3), prolonged ventilation (OR=6.2), pneumonia (OR=4.2), transfusion (OR=3.6), ionotropes drugs (OR=2.3) and dyspnoea NYHA class IV (OR=2.1).
Conclusion: In absence of specific clinical signs of GI complications after cardiac surgery, the acknowledge of the predictor factors for GI complications give us the opportunity to identify the patients at risk in order to treat them rapidly.

C12b - 2

USE OF LEVITRONIX CENTRIMAG FOR ACUTE CARDIAC FAILURE

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Objective: Acute cardiac failure is a mostly lethal condition. The availability of a simple and quick to implant, furthermore easy to manage, cardiac support device is mandatory to quickly address this condition. In this abstract we report the experience with Levitronix CentriMag® in a non-transplant center.
Methods: CentriMag® is available at our institution since February 2004. In the 18 months period was used in 3 different patients. In 2 cases were young patients (<65 yo) postacrdiotomy failure (1 bivalve replacement and 1 CABG) and 1 case was a young lady (28 yo) with acute cardiorespiratory failure due to a LES pneumonia. In 2 cases CentriMag(r) was used to sustain an ECMO (MEDOS LT oygenator applied) in a biventricular cardiopulmonary support. In one case was used as an LVAD. The cannulation sites used were both central (RA or LA to Ascending aorta) or peripheral (Femurfemural cannulation).
Results: All the 3 patients were successfully weaned from the support. In one case acute RV failure developed few ours after weaning from the ECMO, thus a CentriMag(r) RVAD support was promptly initiated; a new weaning was succesfully attempted 21 days later. The support devices allowed a blood flow constantly above the 4 l/min, with a cardiac index between 1.5-2 l/m^2. 50% of the standard Protamine dose was used after cardiopulmonary bypass. Post-op heparin infusion was used only when no bleeding was present from the drainages (<20 cc/h), and ACT was kept between 200 and 180 s in ECMO, and around 150 sec. in the VAD support. Standard ICU bed and protocol were applied. Weaning from the devices were initiated when cardiac function was estimated acceptable by TEE monitoring.
Conclusion: In our experience the Levitronix CentriMag® was an easy and prompt, off the shelf, cardiac support device. We were forced to experiment different cannulation and support methods due to patient and disease characteristics. In our center, with no transplant and very limited cardiac support experience, the device allowed cardiovascular resuscitation in extremely diseased patients. No extra training was required for the OR or ICU personnel to handle the device or the patients special conditions. According to our experience the Levitronix system, in LVAS, RVAS or with oxygenator, is an optimal first level support for acute cardiogenic shock; due to the long on-the-shelf access and intuitive use, we suggest that should be available in any cardiac surgery center.

C12b - 3

REVISIONS DUE TO BLEEDING WITH OR WITHOUT TAMPONADE IN TEN YEARS PERIOD; SINGLE CENTRE'S RESULTS

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Objective: The purpose of this study is to determine the reexploration rate for bleeding in heart operations in ten years period.
Methods: The study has included all patients performed within cardio-pulmonarybypass and OPCAB procedure between January 1995-December 2004. Patients were divided into six different categories as follows; valve replacement±CABG, CABG-CPB, OPCAB, congenital operations with cardio-pulmonarybypass, ascending and/or arcus aortic surgery and the others.
Results: Overall reexploration rate for bleeding was 1.2% (165/13051) in ten years period. The reexploration rate was 1.09% (67/6120) during the first 5-year period (1995-1999) and 1.4% (98/6931) during the second 5-year period (2000-2004). According to subgroups of the patients; reexplorations rate was the highest in the ascending and arcus aortic surgery subgroup (4.65%) and the lowest in the OPCAB subgroup (0.88%). Overall in-hospital mortality rate was 6.6% (11/165). Early revision rate was 85% (139/165) and late revision rate was 15% (26/165). Twenty of the 26 patients in late revision group have used oral anticoagulan due to mechanical valve replacement.
Conclusion: Reexplorations rate for bleeding has increased from 1.09% to 1.4% during the second 5 year period. This may be due to increasing rate in urgency or emergency of patients' condition or worsening preoperative patients' condition in time. Echocardiographic examination in patients being replaced mechanical valve and used oral anticoagulan in the early postop-erative period would reveal the presence of pericardial effusion. This will be useful whether the surgical intervention should be done on the later period.

C12b - 4

PLATELET ACTIVITY IN PATIENTS AFTER CORONARY ARTERY BYPASS SURGERY

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Objective: Hypercoagulability after off-pump coronary artery bypass graft-ing (CABG) as a one of possible cause of early graft failure is currently often discussed. We assessed platelet activity after off -pump and on-pump CABG surgery.
Methods: Twelve off-pump and twelve on-pump surgeries were performed in a prospective randomized study. Blood samples were drawn before surgery, immediately postoperatively, on days 1, 2, 5 and day 30 after surgery. Platelet activity was determined by membrane expression of platelet antigen CD41 (part of GpIIb/IIIa integrin), CD42 (von Wilebrand factor receptor) and CD 62P (Pselectin) by flow cytometry as mean fluorescence intensity (CD41, 42b) or % of positive cells (CD62P). Platelet aggregability was measured by arachidonic acid (ARA)-aggregometry.
Results: Baseline characteristics and intraoperative variables were comparable in both group, except for surgery duration and grafts count. Post-operative membrane antigen expression was significantly and transiently increased in off-pump and decreased in on-pump CABG compared with pre-operative values. Maximum difference of antigen expression in the off-pump was observed for CD41 on day 5 (12.2±0.8 vs. 11.7±0.9, P<0.05), for CD62P on day 2 (2.5±1.5 vs. 1.0±0.5, P = <0.05) and for CD42 on day 2 (12.4±1.5 vs. 12.2±1.4, P = N.S.). In the on-pump, maximum diference was on day 5 for all measured antigens (CD41: 11.1±0.6 vs. 11.9±0.9, P<0.05; CD42b: 11.7±1.2 vs. 12.2 +1.1, P<0.05; CD62P: 1.3±0.4 vs. 1.4+0.4, P = n.s.). No changes to preoperative values were evident in both group on day 30. Platelet ARA-aggregation was significantly decreased immediately after operation and on day 1 in both groups (-70%, P<0.05) and the decrease was sustained until day 30. However, there was a surprisingly transient increase of ARA agregation on day 2 compared to day 1 in off-pump surgeries.
Conclusion: The platelet hyperactivity determined by membrane expression of platelet antigen seems to be present in early post-operative period in off-pump, but not in on-pump CABG surgery. Standard antiplatelet therapy with aspirin seems to be insufficient in early post-operative period in off pump CABG surgery.

C12b - 5

ANGIOGRAPHIC RESULTS OF CORONARY ENDARTERECTOMY

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Objective: To evaluate the patency of endarterectomized coronary vessels, we studied patients having recathetererization after coronary artery bypass grafting.
Methods: Clinical and angiographic variables were analyzed in 60 study patients who had coronary endarterectomy (CE).
Results: Sixty patients had 179 anastomoses with 69 CEs. The left coronary artery was the most commonly endartercetomized vessel (37 of the 69 endaretrectomized vessels). The left internal mammary was grafted in 48 patients (80%). At a mean of 23.1 months of follow-up, significantly fewer bypass grafts were patent compared with nonendarterectomized vessels (54% of endaretectomized vessels compared with 70% of nonendarterectomized vessels in study patients). Distal run-off in endarterectomized vessels were excellent in 61% of CEs.
Conclusion: These results show that patency in bypass grafts to endarterectomized vessels is less common than in nonendarterctomized vessels. We consider that elective CE should be reserved only for arteries that are truly inoperable by other means.

C12b - 6

RADIAL ARTERY AS A CONDUIT IN CORONARY REVASCULARIZATION

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Objective: From a purely surgical stand point, the radial artery represents an excellent conduit for coronary bypass graft.
Methods: The study conducted on 90 patients who underwent CABG utilizing RA as additional arterial conduits at south hospital in Amiens university and Alazhar university hospital between January 2004 to May 2004, age were ranging (45–65) (mean 55). male (81) female (9).
Results: Hand ischaemia: No evidence of hand ischaemia representing 0.00%. Parasthesia: 12 cases were suffered from parasthesia of the thumb and radial side of the forearm representing 13.3%. Coronary Angio: Finally a diagnostic coronary angiography was performed after 1 1/2 years from the operation and showed 87 patients with patent radial artery representing 96.7% and 3 cases with total RA occlusion representing 3.3%.
Conclusion: It was concluded that Radial artery as an arterial conduit posses an excellent early patency rate (96.7%), according to the following precautions: Safe harvesting of the RA as a pedicel, use of metal clips, pharmacologic dilatation and selection of target native vessel for revascularization.

C12b - 7

PATIENTS AND COMPLICATIONS WITH "OFF-PUMP" VERSUS "ON-PUMP" CARDIAC SURGERY - A SINGLE SURGEON EXPERIENCE

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Objective: Off-pump operations without the use of extracorporeal circulation (ECC) are growingly used for patients with coronary artery disease (CAD). We report about a single surgeon experience implementing the "off-pump" technique.
Methods: Between 11/2004 and 12/2005 41 consecutive patients with coronary artery bypass grafting (CABG) in "off-pump" technique without using ECC (off-pump group) were compared to a control group of 61 patients with CABG using ECC (on-pump group). All operations performed by the same surgeon at the same institution. All "off-pumps" were performed complete arterial using both internal thoracic arteries (ITA) in T-graft technique, while in the "on-pump" group only the left ITA and venous grafts were used.
Results: Age (63.0±10.1 vs. 66.6±9.7 years), body-mass-index (27.2±2.8 vs. 27.7±3.9 kg/m^2) and gender (male, 84.2 vs. 85.2%) were comparable in both groups (off-pump vs. on-pump, all P = ns). All major preoperative risk factors (smoking, hypertension, previous myocardial infarction) were comparable between the groups. However, peripheral arterial vessel disease (5.1 vs. 8.1%, P = 0.043) and COPD (3.0 vs. 10.1%, P = 0.003) were significant more often in the "off-pump" group. Operation time was significantly longer in the "off-pump" group (218±31 vs. 169±55 min, P<0.001). The time on the ventilator (8.5±47.2 vs. 8.0±39.4 hr) time on the intensive-care-unit (ICU) (2.87±5.0 vs. 1.75±3.0 days) and number of bypassgrafts (2.50±0.51 vs. 2.69±0.65) were not significantly different. However, the rate of postoperative atrial fibrillation (AF) was significantly elevated in the "off-pump" group (26.3 vs. 8.2%, P = 0.016).
Conclusion: The "off-pump" technique was primarily performed in patients with COPD and pAVD, which are relative contraindication using ECC. Despite a longer operation-time severe complications did not occur. The high incidence of AF needs to be further evaluated.

C12b - 8

ASPIRIN RESISTANCE AFTER CABG AND ROLE OF ALTERNATIVE DOSE REGIMEN IN PROPHYLAXIS

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Objective: Aspirin resistance describes the failure of aspirin to produce an expected biological response. Although it has been documented that patients undergoing CABG have high incidence of postoperative transient aspirin resistance, the causes and treatment of this phenomenon are still unknown. This study is planned to resolve these questions and determine if aspirin resistance is related with early graft patency.
Methods: Forty patients undergoing elective CABG will be included in this study. Aspirin resistance will be measured by optical platelet aggregation method and patients whom aspirin resistance is documented before the operation will be excluded from the study. Patients will be divided into two groups on the 1st postoperative day. In group I, patients will receive 300 mg of aspirin, once daily; but in group II, 100 mg of aspirin will be given three times a day. On the 1st, 5th and 10th postoperative day, aspirin resistance, C-reactive protein (CRP) levels, lipid profile and platelet count will be measured. Then, coronary angiography will be performed to all patients on multislice CT one month after the surgery.
Results: The effects of postoperative reactive trombocytosis, high levels of CRP, and alternative antiplatelet therapy on postoperative aspirin resistance will be revealed with binary logistic regretion analysis.
Conclusion: The results will help us to understand the role of inflammatory response and increased platelet turnover triggered by CABG on aspirin resistance ethiology. The effect of alternative antiplatelet dose regimen will also be studied. Finally, the relation between early graft patency and aspirin resistance will be shown with control coronary angiography on multislice CT.

C12b - 9

DOES RADIAL ARTERY HARVESTING AFFECTS THE FOREARM BONE STRUCTURE?

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Objective: There have been no reports of assessment of the effect of radial artery harvesting on forearm bone mineral densitometry.
Methods: Patients scheduled for radial artery harvesting were prospectively randomized and 33 patients were studied before and after CABG operations. Bone mineral densities of the operated forearms of the patients were measured preoperatively and postoperatively. Patients were also followed for any long-term complications in the harvested forearm.
Results: Thirty-three patients (33 men; mean age, 53.29±8.4 years) were included in the study. Bone density of the proximal and distal operated forearm (radius+ulnar) 23.3?1.48 months postoperatively wasn't significantly different than the mean value for the baseline values (P = 0.846 and 0.772 respectively). Only 1 patient was complaining from minimal paresthesia at the fingertips.
Conclusion: The results from this prospective study provide the first evidence that radial artery harvesting does not affect bone remodelling of the operated forearm. Additional studies are needed to define the long-term effects of radial artery harvesting on bone structure.

C12b - 10

ON PUMP VERSUS OFF PUMP CABG IN CRITICAL LEFT MAIN STEM STENOSIS

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Objective: The aim of this study was to compare the outcome between two groups of consecutive patients (pts) with LM stenosis >50% using cardiopulmonary bypass (CPB) vs. off pump coronary artery grafting.
Methods: Three hundred and eighty two pts with LM stenosis who underwent direct myocardial revascularization with (265 pts) and without (117 pts) CPB from 01-01-2004 to 31-08-2005 in a single center were included in the study. The following variables were analyzed: age, gender, CCS, EF, EUROscore, diabetes, neurological problems before and after surgery, hypertension, hyperlipidemia, PVD, COPD, numbers of grafts, day of stay, extubation time, ICU time, IABP, drainage, blood transfusion, inotropic support, perioperation MI, reoperation, wound infections, death.
Results: Even though patients from the off pump group were preoperatively significantly sicker as measured by EUROscore (4.73 vs. 3.8 $P<0.004$), stroke rate (7.7% vs. 3,0% $P< 0.05$), with morphological changes of carotid arteries (17.9% vs. 9.1% $P<0.05$) the mortality and morbidity did not differ significantly after operation. On pump patients received a higher number of grafts (3.2 vs. 2.4 $P<0.001$). In postoperative period more on pump patients needed blood transfusion (54.5% vs. 17.1% $P<0.001$).
Conclusion: Beating heart surgery compared to on pump bypass surgery in pts with LM disease is safe and effective and carries a decreased need for blood transfusion.

C12b - 11

LOCAL MORBIDITY ASSOCIATED WITH ROUTINE USE OF SKELETONIZED RADIAL ARTERY IN CABG SURGERY

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Objective: The objective of the study was to evaluate the local complications in the donor arm for radial artery, in a population where it has been used as the second arterial conduit for coronary artery bypass grafting (CABG) procedures.
Methods: One hundred and twenty-three consecutive patients who underwent CABG surgery in our Institution from May 2004 to April 2005, using the radial artery as the second arterial conduit, with a uniform protocol for selection, harvesting and handling of the graft, were evaluated. The mean age of the group was 64.0±0.8 years (range 44-81), 100 male (81.3%) and 23 (18.7%) female. The functional class for angina was 2.6±0.5. They presented 2.5±0.6 diseased vessels per patient and ejection fraction (EF) was 53.5±8.9%. In the immediate postoperative period and after one month of follow up, patients were asked to evaluate the pain in the upper limb from 0-no pain to 5-maximum pain and force from 0-paresia to 5normal movement and force. They were also demanded about parestesias, numbness or dysestesias in the territories of radial nerve and cutaneous branch of musculocutaneous nerve.
Results: RA was used in 123 patients, 70 (56.9%) of which underwent a personal interview. There was not any case of hand ischemia or motor dysfunction, either in the immediate postoperative period or in the follow-up. There were no wound infections and no reinterventions due to bleeding of the harvest site. Mean subjective evaluation of pain was in the postoperative period 0.24±.012 and in following month 0.17±0.11. Superficial radial nerve was affected in 21.4% (15 cases) and cutaneous branch of musculocutaneous nerve in 14.3% (10 cases). Force was evaluated as 4.7±0.1.
Conclusion: Use of radial artery as the second choice arterial conduit carries a very low incidence of local morbidity associated to the harvest site complications. When these complications appear, they do not interfere with daily activity of the patients. We recommend careful monitoring of these patients and we firmly believe that the use of radial artery can be extended to the general population who presents for CABG surgery.

C12b - 12

INFLUENCE OF SEX AND AGE ON LONG-TERM SURVIVAL IN SYSTEMATIC OFFPUMP CORONARY ARTERY BYPASS SURGERY

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Objective: Off-pump coronary artery bypass surgery (OPCAB) is used alternatively to conventional "on-pump'' approach for coronary artery revascularization. Sex and age have been shown to adversely affect operative mortality risk as well as long-term survival. The Aim of the study is to evaluate the effect of age and sex on long-term mortality following OPCAB surgery.
Methods: We have prospectively followed up 900 consecutive and systematic OPCAB patients operated between September 1996 and April 2003 representing 98% of all coronary revascularizations during the same time frame. Follow-up was complete in 99% of the cohort.
Results: Average age was 64±10 years, there were 198 women (21%) and 702 men (79%), 73% had triple vessel disease, in 69% surgical indication was unstable angina and 5.3% were operated in emergency. On average 3.2 grafts/patient were performed. Women were older, 68+10 vs. 63+10 years ($P<0.0001$). Operative mortality was 1.1%, 0.9% in men and 2% in women (P = ns). By logistic regression analysis, peripheral vascular disease (OR: 14.2, $P = 0.02$), and CKMB (OR: 1.01, $P = 0.06$) were the main risk factors for operative mortality. Eight-year survival was 84±2.9% for men and 69.3±7.8% for women, ($P = 0.004$). By Cox regression analysis, age (OR: 1.07, $P<0.001$), incomplete revascularization (OR: 3.54, $P<0.001$), peripheral vascular disease (OR: 1.67, $P = 0.05$), and diabetes (OR: 1.75, $P = 0.03$) were significant predictors of long-term mortality. When revascularization was performed before 65 years of age, sex was identified as an adverse risk factor on survival (OR: 7.7; $P = 0.006$) but not after (OR: 0.9; $P = 0.8$).
Conclusion: In this series of systematic OPCAB surgery, sex was shown to adversely affect longterm survival mainly in younger patients.

C12b - 13

EFFECT OF POSITIVE END-EXPIRATORY PRESSURE ON POSTOPERATIVE BLEEDING IN CORONARY ARTERY BYPASS SURGERY

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Objective: Reducing perioperative blood transfusions is an important goal in cardiac surgery. There are many strategies to reduce postoperative bleeding and postoperative blood and blood products transfusions. To apply increased positive end-expiratory pressure (PEEP) in the postoperative period is one of these strategies to reduce postoperative bleeding after coronary artery bypass surgery.
Methods: Three hundred patients who underwent coronary artery bypass grafting involved in the study. Patients were prospectively randomized into three groups depending on the amount of PEEP applied during the intubation period; 5 cm H_2O PEEP was applied to first group patients, and 10 cm H_2O and 15 cm H_2O PEEP values in the 2nd and 3rd groups. In each group the PEEP values kept as indicated at the beginning unless unstable hemodynamic status persisted. Patients in whom lower PEEP values or 0 cm H_2o PEEP were required for more than half an hour to restore hemodynamic status were excluded from the study. The amount of postoperative bleeding, amount of red blood cells, thrombocytes and fresh frozen plasma, morbidity, mortality, duration of intensive care unit and hospital stay were recorded.
Results: Twelve of the patients excluded from the study; eleven of them didn't tolerate the selected amount of PEEP values during the intubation period and the remaining was lost in the operating room due to left ventricle failure. As a result 97 patients in Group I, 95 patients in Group II and 96 patients in Group III were enrolled in the study. There were no significant differences in operative data of the three groups. Three patients in Group I and two in group II were re-explored for bleeding. None of the patients in Group III underwent reexploration for bleeding. The amount of bleeding at the 6th postoperative hour was similar in Group I, and in Group II. But the amount of bleeding which was 345±125ml in Group III was significantly lower than the other 2 groups. Also the 24th hour results were similar, and significantly lower in the third group. Although the difference between Group I & II were not significant, the amount of erythrocyte suspensions used in Group III patients were lower than these two groups. Also the amount of fresh frozen transfused was significantly lower in Group III compared with other groups. But the difference wasn't statistically significant in thrombocyte suspension between groups.
Conclusion: 15 cm H_2O PEEP applied postoperatively after coronary artery bypass surgery reduces postoperative bleeding and amount of transfusions.

C12b - 14

IS THE LEARNING CURVE A REAL PROBLEM IN OFF-PUMP CORONARY ARTERY SURGERY?

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Objective: Off-pump coronary artery bypass grafting (OPCAB) is still a relative new and difficult operative method. Some centers have implemented special courses to decrease problems during offpump coronary surgery training. In the current study we try to answer the question if the residents OPCAB training had a negative effect on hospital results. We compared the OPCAB outcomes of experienced cardiac surgeons to residents.
Methods: From March 2001 to November 2004 OPCAB was performed in 1372 patients (39% of all coronary surgery). Consultants (Group I) did 965 OPCAB procedures (38% of their coronary cases), while residents (Group II) employed this technique in 407 patients (41% of all their coronary cases).
Results: The number of preoperative comorbidities and mean EuroSCORE were similar in both groups, although more patients with low risk were operated by residents. The mean number of distal anastomosis was 2.2±0.8 vs. 2.3±1.3 in residents patients. The hospital mortality was 1.8% in Group I and 0.7% in Group II. This difference also did not differ significantly, as well as the number of postoperative myocardial infarction and other hospital complications.
Conclusion: Off-pump coronary artery bypass grafting have an established position and can also be performed safely by residents. The learning curve is not a real problem when teaching program is careful and the training program should start early.

C12b - 15

A COMPARISON OF RESULTS OF LESS INVASIVE SURGICAL TREATMENT OF CORONARY DISEASE WITH OR WITHOUT VATS HARVESTING OF LIMA ACCORDING TO VARIOUS NON-INVASIVE EXAMINATIONS

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Objective: To assess the early and mid-term (6-12 months) results of surgical treatment of single vessel coronary disease (Left Anterior Descendent Artery) by Minimally Invasive Direct Coronary Artery Bypass (MIDCAB) and Endoscopic Atraumatic Coronary Artery Bypass (EACAB).
Methods: A prospective study of 100 patients (50 in each group) operated from May 2002 to September 2005 was performed. Patients in both groups were similar in demographic data. All patients had angiography, Dobutamine stress echocardiography and SPECT done preoperatively. Some of them also had mammariography performed preoperatively. Study performed postoperatively and after 12 months included physical examination, Dobutamine stress echocardiography, angiography with mammariography and SPECT.
Results: Duration of MIDCAB operation and occlusion time of LAD during this procedure were significantly better then EACAB; respectively: (8.24±2.33 vs. 9.3±1.91; $P<0.02$) and (70.88 ±14.41 vs. 108.9±16.56; $P<0.0001$). There were no significant differences in postoperative drainage: (506.2±434.1ml v. 575.5±280.2ml; $P = 0.3452$) and length of stay (8.9±9.64 days v. 9.26±6.22 days; $P = 0.8249$). In MIDCAB group mammariography showed full patency of the anastomose in all patients, in EACAB group in 94% ($P = 0.119$). Stress echo showed improvement of contractility in 80% of MIDCAB patients and 76% in EACAB patients ($P = 0.475$). SPECT showed improvement of anterior wall perfusion of 100% patients of MIDCAB group and of 94% of EACAB ($P = 0.241$). After 12 months Stress echo showed improvement of contractility in 88% of MIDCAB patients and (86%) of EACAB patients ($P = 0.766$). SPECT showed improvement of anterior wall perfusion in 80% patients of both groups.
Conclusion: 1. Both methods MIDCAB and EACAB are equally effective and should be put into practice alternatively according to particular indications. 2. Among non-invasive examinations SPECT appears to be the most accurate examination to asses postoperative changes of myocardial perfusion and effectiveness of myocardial revascularisation by LIMA.

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OFF-PUMP CABG: IS THE SIMPLEST WAY THE BEST?

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Objective: In spite of publications, which display advantage of beating heart operations, there is an opinion among surgeons concerning limitation of using off-pump technique (intramural coronary artery, low ejection fraction, small diameter of vessels, repeated interventions). Many surgeons think that it is necessary to use special devices for more extensive using off-pump technique (intracoronary shunt, hemopump ets.). The purpose of this work was to study a necessity of using special devices in case of total conversion to off-pump technique.
Methods: 2459 patients underwent coronary artery bypass grafting (CABG) from January 2000 to November 2005 in our department. Off-pump CABG were performed with using compression type stabilizer. We have never used intracoronary shunts, cell-savers, warm up devices. Also preconditioning methods were not implemented. We always performed proximal anastomosis first and distal one after that.
Results: During 2000 year 49.7% of operations were performed with using off-pump technique, 2001 -86.8%, 2002-98.1%, 2003-97.8%, 2004-97.3%, 2005-98.1%. Among 2459 OPCAB 2144 (87.2%) were elective, 315 (12.8%) were urgent and emergency. Intramural coronary artery were in 209 (8.5%)cases, LVEF<40%- in 288 (11.7%), LVEF <30% - in 39 (1.6%), re-operation - in 27 (1.1%). Mean graft number was 3,0+0.4(from 1 to 7). Conversion to on-pump CABG was necessary in 47 (1.9%) cases. Rate of low cardiac output syndrome decreased from 18.5% in 2000 to 2.0% in 2005. The intraoperative total blood loss was 374+35ml. In 2000 mortality (all CABG operations) was 6.4%; in 2001- 2.0%; in 2002- 2.1%; in 2003-1.4%; in 2004-0.5%; in 2005- 0.5%. The influence of traditional risk factors (female, low LVEF, diabetes) was eliminated as a result of OPCAB. Operative mortality was lower among women than among men (0.4% and 0.5%). In the presence of LVEF<40% mortality was 0% compared to 0.6% in the cases of LVEF>40%. Mortality was 0.2% in the diabetics group compared to 0.5% in the patients without diabetes. The postoperative length of stay decreased from 10.1 days in 2000 to 4.8 days in 2005.
Conclusion: Off-pump technique can be used practical in all cases of IHD, with the exception for patients with cardiogenic shock. Using of this method may significantly decrease mortality. OPCAB method does not need another special devices, except for stabilizer.

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REPAIR OF POST-INFARCT VENTRICULAR SEPTAL RUPTURE WITH INFARCT EXCLUSION TECHNIQUE: EARLY RESULTS

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Objective: Ventricular septal rupture is a rare but life-threatening complication of acute myocardial infarction. Mortality with medical treatment only is extremely high, over 90% whereas mortality after surgical repair varies between 19 and 60% in different studies. Despite optimal surgical treatment, patients with septal rupture have a high in-hospital mortality rate. This study reviews our experience based on early closure of the septal rupture with infarct exclusion technique.
Methods: Data were collected on a total of 16 consecutive patients undergoing surgical repair of a post-infarct ventricular septal rupture between 1 June 2000 and 1 November 2005 in our clinic. There were 10 man and 6 women. Mean age was 65.69±5.53, ranging from 52 to 74 years. All patients had echocardiography and coronary angiography before operation. Rupture was closed with infarct exclusion technique for all the patients. Preoperative, operative and postoperative information was collected from patient cohorts.
Results: The median time from myocardial infarction to diagnosis of the ventricular septal rupture was 4.3±1.7 days. Thirteen of the patients had intraaortic balloon pump inserted, and 5 of them ventilated preoperatively. Surgical repair followed between 1 and 4 days after diagnosis. Nine anterior and seven posterior ventricular septal ruptures were found. Additional coronary artery bypass surgery was performed with a median of 1.25 grafts in 13 patients (81.25%). No surgical intervention was need for bleeding. The mean postoperative entubation time was 34.13±45.11 h, ranging from 10 to 192. Overall 30-day mortality was 18.7%. The mean stay in intensive care unit was 3.3±1.7 days, ranging from 1 to 8. Postoperative transthoracic echocardiography showed minimal residual shunt in 4 patients.

Conclusion: Ventricular septal rupture is rare, but fatal sequel of acute myocardial infarction. Early surgical repair is essential to prevent other organs. With infarct exclusion technique the infarcted area was completely excluded from the left ventricular cavity with a synthetic patch. The repair was very stable, which results in no surgical reintervention for residual shunt or bleeding. Patch closure of the ventricular septal rupture with infarct exclusion technique provided acceptable results. Concomitant coronary artery bypass grafting might be beneficial to control added risk of an associated coronary artery lesion. Prompt diagnosis followed by early surgical intervention is essential for patients with ventricular septal rupture.

C12b - 18

CORONARY REVASCULARIZATION IN JEHOVAH'S WITNESSES PATIENTS. ONPUMP OR OFF-PUMP PROCEDURE?

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Objective: Jehovah's Witnesses are the patients who refuse blood transfusion. This attitude is vital in cardiac surgery due to increased possibility of coagulation disorders and postoperative anaemia. The aim of the present study is a comparison of early postoperative outcome of on-pump vs. off-pump coronary artery surgery, especially in terms of blood morphology parameters, in this group.
Methods: A prospective, nonrandomized, single centre observation was conducted in 28 consecutive, Jehovah's Witnesses patients, operated on for coronary artery disease from January 1997 to November 2005. Patients were divided into two groups: I - 14 CABG patients and II - 14 OPCAB patients. Combined transfusion alternatives protocol, including preoperative erythropoietin stimulation - human recombinant Erythropoietin (rHu EPO), acute normovolaemic hemodilution (ANH) or intraoperative cell salvage and, only in group I, antifibrinolytic therapy - Aprotinin 140 or 280 mg, was applied. Perioperatively the demographic data, operative risk, full blood count, mortality, morbidity, chest tube drainage, duration of ICU stay, duration of mechanical ventilation and costs of transfusion alternatives were compared. Statistical analysis was performed using U Mann-Whitney and Pearson's Hi_2 tests. All data were expressed as the mean±standard deviation. *A P* value <0.05 was considered significant.
Results: There were no differences in demographic data, preoperative full blood count, coagulation parameters and risk. Mortality and morbidity rate, duration of mechanical ventilation were similar. Lower blood haemoglobin concentration (mmol/l) in second, third and fourth postoperative days was observed in group I: 6.72±1.24 vs. 7.68±0.89 (*P*<0.05); 6.10±1.22 vs. 7.21±0.95 (*P*<0.05); 6,02±1.25 vs. 7.33±0.91 (*P*<0.01), respectively. There were also longer ICU stay (h): 45±27,76 vs. 25,75±13.66 (*P*<0.05); higher total dose of EPO (U): 610±330.02 vs. 353.57±224.86 (*P*<0.05) and rate of deep postoperative anaemia (Ht<25%): 28.5% vs. 0% (*P*<0.05) observed in group I, however, the number of grafts in this group, was higher 3.14±0.66 vs. 1.92±0.61 (*P*<0.01). Transfusion alternatives protocol costs (€) are also higher in this group: 729.85±357.52 vs. 456.44±252.39.
Conclusion: The results of this observation show the benefit of OPCAB procedure in patients refusing blood transfusion: lower risk of postoperative anaemia and reduction of costs associated with transfusion alternatives protocol. Off-pump coronary artery surgery is a good alternative of treatment in this group of patients.

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CLINICAL SIGNIFICANCE OF HEPARIN BONDED CIRCUITS WITH REDUCED VERSUS FULL SYSTEMIC ANTICOAGULATION PROTOCOL IN CORONAY ARTERY BYPASS GRAFTING

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Objective: In contrast to widespread popularity of novel heparin coated extracorporeal circuits (HECC), uncertainty exists whether reduced anticoagulation is feasible and documented positive outcome is due to heparin dosage or coating itself. This study compares novel H-ECCs vs. uncoated circuits under challenging clinical setting including biomaterial evaluation.
Methods: Over a 6 month period, 40 patients undergoing reoperation for coronary revascularization were prospectively randomized to one of the two heparin coated circuits (*n* = 20): Group 1-Hyaluronan based and Group 2- Human albumin based heparin bonded. In each group, half of the patients (*n* = 10) received low systemic heparin (125 IU/kg, ACT > 250 s) or full dose. Group 3 (*n* = 40) consisted of uncoated control circuits with full heparin regimen. Blood samples were collected at T1: Following induction of anesthesia; T2: Following heparin administration; T3: 15 min after CPB; T4: Before cessation of CPB; T5: 15 min after protamine reversal and T6: ICU. Hematologic outcome was evaluated by thromboelastography, free plasma hemoglobin and thrombin-antithrombin III complex (TAT). Blood cell adhesion on fibers was analyzed on optical microscopy and scanning electron microscopy. Desorbed protein amount on circuits was evaluated by spectrophotometer. Fibers were placed in tissue culture and attached cells were counted. Perioperative follow-up was thoroughly monitored.
Results: In low dose protocol, IL-2 levels (pg/ml) were lower at T3:30±4 and T4:27±4 in Group1; T3:29±4 and T4:24±4 in Group 2 vs. control (T3:84±6, T4:55±6, *P*<0.05). Postoperative hemorrhage was 465±50 ml in Group 1 and 438±50 ml in Group 2 (684±50 in control, *P*<0.05). percent change of CD11b/CD18 was significantly lower vs. control in Group 1 (T3:29±4, T4:5±1, T5: 14±2) and Group 2 (T3:26±4, T4:11±2). At T5, TAT-max (ng/ml) was 174±35 in Group 1.180±40 in Group 2 and 139±30 in control (*P*<0.05). The incidence of atrial fibrillation was significantly lower in low dose heparin groups. In full dose protocol, IL-2 levels were lower at T4:33±4 in Group1; T3:35±4 in Group 2 (*P*<0.05). Postoperative hemorrhage was 510±50 ml in Group 1 and 495±50 ml in Group 2 (*P*<0.05). Percent change in CD11b/CD18 was significantly lower vs. control in Group 1 (T4:14±2) and Group 2 (T4:19±2). At T5, TAT-max was 185±50 in Group 1.189±40 in Group 2 and 139±30 in control (*P*<0.05).
Conclusion: Reduced systemic heparinization combined with H-ECC is biochemically and clinically safe resulting in low thrombin formation. Both strategies with H-ECC provided better perioperative clinical outcome and biocompatibility vs. uncoated controls.

C12b - 20

IS ALLEN'S TEST SUFFICIENT BEFORE RADIAL ARTERY HARVESTING?

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Objective: The purpose of this study was to determine if the Allen's test is a sufficient method for the preoperative evaluation of the forearm artery circulation before radial artery (RA) harvesting for CABG.
Methods: A total of 185 patients scheduled for RA harvest were prospectively randomized into Group A and Group B. In Group A (*n* = 120), to assess the collateral circulation of the hand preoperatively, the patients were routinely evaluated by modified Allen's test and index finger pulseoxymetry. In Group B (*n* = 65), patients additionally evaluated by color flow Doppler ultrasonography (USG) preoperatively and postoperatively. Preoperative and postoperative patients' data were compared.
Results: In the preoperative evaluations of Group A with Allen's test with the use of pulseoxymetry, 1 patient excluded from RA harvest because of positive test result. In the USG evaluation of this patient, we did not observe any anatomic variations; however we observed insufficient palmar arch test and peak systolic velocity of the ulnar artery was 25 cm/s which was considered as insufficient flow. In the preoperative evaluations of Group B with Allen's test with the use of pulseoxymetry, none of the patients excluded from RA harvest because of positive test and in the preoperative evaluations with USG none of the patients showed any anatomic variations of the forearm artery circulation. However, 5 patients (7.7%) excluded from RA harvesting because of RA pathology in ultrasonography findings. In the USG evaluations 3 patients (4.6%) showed diffuse arteriosclerosis and 2 patients (3.1%) showed diffused calcification. As a result 1 patient from Group A and 5 patients from Group B excluded from RA harvesting (0.8%, *n* = 1/120 vs. 7.7%, *n* = 5/65, *P* = 0.021). After two years follow-up, neither the patients in group A nor in group B were not complaining of any form of ischemic symptoms except minimal paresthesia at the fingertips in 2 patients in Group A (1.7%, *n* = 2/120 vs. 0%, *n* = 0/65, *P* = 0.542).
Conclusion: Although the Allen's test with the use of pulseoxymetry is a sufficient and safe method to assess the hand collateral blood flow preoperatively, it is not a method to evaluate the graft quality. In Group B, the incidence of pathologic radial arteries which was inadequate to use as a graft was 7.7%. Therefore, preoperative evaluation of the RA with USG may thus be recommended to evaluate the hand collateral blood flow and the graft quality preoperatively to prevent unnecessary forearm exploration and inadvertent use of a diseased conduit to improve the graft patency.

C12b - 21

SINGLE SURGEON EXPERIENCE IN CORONARY BYPASS SURGERY - COMPARISON OF CABG VERSUS OPCAB TECHNIQUE IN OVER 600 CASES

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Objective: The premise of coronary revascularization without cardiopulmonary bypass (off-pump coronary artery bypass graft [OPCAB]) proposes that patient morbidity, complications and potentially mortality can be reduced without compromising results of conventional revascularization techniques (CCABG). This retrospective study aimed to assess the results and outcome after coronary bypass surgery using two surgical techniques by one surgeon.
Methods: From Coronary Bypass Surgery Registry 675 consecutive patients were analyzed having undergone direct myocardial revascularization with (n-270, group CCABG) and without (n-405, group OPCAB) extracorporeal circulation from March 2001 to November 2003. After matching age, gender, extent of coronary artery disease the two groups were compared in two revascularization modalities. Preoperative and postoperative variables were analyzed such as bleeding, myocardial infarction, inotropic support, IABP, wound infection. The number of coronary artery disease vessels detected in coronary angiography was compared to the number of performed grafts in order to evaluate complete revascularization. The EuroSCORE risk stratification tables were used to evaluate the outcome after surgery for both groups.
Results: There was one operative death in CABG group in this period. Perioperative mortality was lower in OPCAB group. The mortality rate was in group CCABG 2.6% (7/270) vs. 1.7% (7/405) in OPCAB group. Mortality (CCABG vs. OPCAB) was in the low 0.9% (1/115) vs. 1, 2% (2/172), medium 1, 0% (1/99) vs. 2, 5% (4/160) and 9, 0% (5/56) vs. 1, 4% (1/73) $P<0.05$ in high risk group according to EuroSCORE. The incidence of complications (CCABG vs. OPCAB) such as low cardiac output (inotropic support) 33% (88/270) vs. 19% (75/405) $P<0.001$, IABP 7% (19/270) vs. 3% (12/405), myocardial infarction 3.3% (9/270) vs. 2.5% (10/405), reoperations 6% (16/270) vs. 5.4% (22/405), atrial fibrillation 6.7% (18/270) vs. 3.5% (14/405) $P<0.05$, neurological complications 4.1% (11/270) vs. 2% (8/405) was lower in OPCAB group.
Conclusion: Evidence suggests that beating heart surgery, in one surgeon's hands, providing recurrent surgical technique is a safe method for myocardial revascularization with comparable good results to conventional techniques. The statistical analyzes showed beneficial factors such as lower incidence of used inotropic support, IABP and incidence of atrial fibrillations in patients during postoperative period operated on without extracorporal circulation.

C12b - 22

RADIAL ARTERY IN CORONARY ARTERY BYPASS GRAFTING

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Objective: The aim of this publication is to analyse the results of CABG using linear, sequential and T-grafts of radial artery.
Methods: During 2000-2005 years 386 operations with radial artery graft were done. The mean age of the patients was 54.8 years. Male gender was 84.7%. Angina of III-IV class was in 78,0% of the patients. Unstable angina was in 16.1% of the cases. History of myocardial infarction was in 61.1% of the patients. Left main trunk disease was in 12.6% of the cases. In 71.4% of the cases linear grafts with radial artery were performed - 1st group. 19.3% of the arteries were used as a sequential graft - 2nd group. 9.3% were used as a T-graft with left internal thoracic artery - 3rd group.
Results: In all cases during operation and in postoperative period there were no ischemia in radial artery area. The mean time of intensive care unit stay was 1.5, 1.7 and 1.7 days in all groups ($P<0.05$). 4 (1.5%) patients died in group 1 and in group 2 and 3 mortality was 0%. In 12 (5,0%) of 242 investigated patients there was a reccurence of angina in the follow-up period from 8 months to 4 years.
Conclusion: The use of different surgical technique in CABG with radial artery does not prolong the operation time and with good immediate and follow-up results and could be recommended for multivessel injury correction.

C12b - 23

RADIAL ARTERY AS A CONDUIT IN CORONARY REVASCULARIZATION

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Objective: From a purely surgical stand point, the radial artery represents an excellent conduit for coronary bypass because: It is an arterial grafts used to systemic pressure, its diameter, slightly greater than ITA corresponds perfectly to the diameter of most coronary arteries, the quality of its wall (thick and resistant) offers very good technical advantages to its use, its length (usual more than 20 cm) allows it to reach all target vessels on the surface of the heart, ease of harvesting., concomitant harvesting during take down of ITA., well tolerated scar and avoiding leg incision and early mobilization.
Methods: The study conducted on 90 patients who underwent CABG utilizing RA as additional arterial conduits at south hospital in Amiens university and Alazhar university hospital between January 2004 to May 2004, age were ranging (45–65) (mean 55). male (81) female (9). Exclusion Criteria: The exclusion criteria's including the following factors: radial artery dependency, prior trauma or surgery to the relevant upper limb, known subclavian, or brachial artery stenosis, raynouds phenomenon, sclerodemia, RA calcifications and chronic renal failure planned for haemodialysis.
Results: Hand ischaemia: No evidence of hand ischaemia representing 0.00%. Parasthesia: 12 cases were suffered from parasthesia of the thumb and radial side of the forearm representing 13.3%. Coronary Angio: Finally a diagnostic coronary angiography was performed after 1 1/2 years from the operation and showed 87 patients with patent radial artery representing 96.7% and 3 cases with total RA occlusion representing 3.3%.
Conclusion: It was concluded that Radial artery as an arterial conduit posses an excellent early patency rate (96.7%). This could to be attributed to the following precautions in the use of radial artery as a conduit in CABG: Safe harvesting of the RA that included RA removal as a pedicel instead of its skeletorization and use of metal clips instead of diathermy to minimize traumatizing handling of the artery and it's subsequent spasm, avoidance of mechanical dilatation of the RA in order to minimize endothelial injury as the latter has a central role in preserving a high patency rate of the used graft, so a pharmacologic dilatation should be used instead of mechanical dilatation, the strategy of selection of target native vessel for revascularization is important in the surgical technique so that the target coronary artery for the RA must be the vessel with the expected critical.

C12b - 24

ON-PUMP BEATING HEART CORONARY ARTERY BYPASS GRAFTING IN HIGH RISK

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Objective: Aortic cross-clamping causes sub-clinical ischemic damages to myocardium and other organs in patients who undergo coronary artery bypass grafting (CABG). These damages are reversible and not detectible in elective patients with low perioperative risks but can represent precipitating factors in high risks patients. Moreover, it's not always possible to perform off-pump surgery. Hence, an alternative procedure in these selected patients can be the hybrid on-pump beating heart procedure. It permits to avoid ischemic damages to myocardium and other organs. We described our experience with on-pump beating heart myocardial revascularization in high risks patients.
Methods: From January 1998 to November 2005, 100 high risk patients were referred to our Institute for surgical myocardial revascularization. The mean age was 66.6±8.9 years (range 43-86 years). 86% of the group was male. 43 patients were in NYHA functional class III-IV. 5% had previous stroke, 23% chronic renal failure, 19% Chronic obstructive pulmonary disease, 27% diabetes, 15% previous coronary artery bypass grafting. 64 patients had previous myocardial infarction while 23% of the group had recent myocardial infarction. The mean Ejection Fraction (EF) was 41.6%. The coronary angiography showed tri-vessel disease in 62 patients and the stenosis of the main branch of left coronary in 24 cases. 9 patient were referred for urgent revascularization an 5 for emergency revascularization. CABG was performed on-pump beating-heart, as the perioperative risks were high and off-Pump surgery was not suitable for anatomical or technical reasons.
Results: The mean number of grafts was 2.4±0.7. 97 patients had a graft on left descending coronary artery. No patients requested Intra Aortic Balloon Pump (IAPB) during and after surgery. No patients had perioperative stroke,

acute respiratory failure, mediastinitis. Only 1 patients (1%) developed perioperative myocardial infarction while other 5 AMIs were registered at the admission. Two patients had acute renal failure. Perioperative mortality was 4%. The cause of death was myocardial infarction in 2 patients admitted in emergency with anterior AMI, ventricular fibrillation in 1 patient and acute renal failure in 1 patient.
Conclusion: On-pump beating heart CABG can represent a safe surgical alternative to traditional onpump surgery in high risk patients, when off-pump CABG is not feasible. It can permit to avoid myocardial ischemia and organ damages related to continuous flows when surgical ischemia could affect perioperative mortality and morbidity.

C12b - 25
LONG-TERM FOLLOW-UP OF LEFT OSTIAL STENOSIS SURGICAL RECONSTRUCTION
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Objective: Left main coronary stenosis, including ostial lesions, is conventionally treated by coronary bypass surgery. However, this approach restores a less physiologic, retrograde perfusion of the myocardium, that leads to occlusion of the left main coronary artery. Direct surgical reconstruction of ostial LMCA avoids these potential drawbacks.
Methods: From May 1995 until December 1997, 11 surgical angioplasties have been performed in our unit. Eight pts in CCS class II and 3 pts in CCS III. One patient had undergone coronary bypass prior to angioplasty of the LMCA. Patients were all followed-up clinically and with echocardiography.
Results: Mean age of patients 53 years (range 33-70). Male to female ratio was 1.75. The left main coronary stem was approached anteriorly in all patients. The onlay patch consisted of saphenous vein in all our cases. There were no early deaths or perioperative myocardial infractions. During mean follow up of 8 years, there were 2 deaths (one non-cardiac and one due to unknown cause), making an 8 year all causes survival of 81%. None of those patients had any cardiac events or received repeated coronary intervention. The post-operative course was uneventful in all patients. All patients underwent follow-up transesophageal echocardiography (at mean post-op time of 7.5 months). This demonstrated a wide open left main coronary artery normal flow pattern by pulsedwave Doppler, and no aneurysmal dilatation or calcification of the onlay patch in 10 patients. In one case the left ventricular function was compromised compared to its preoperative status and the echo failed to demonstrate flow on the anterior descending artery witch had received a LIMA graft.
Conclusion: In conclusion, surgical reconstruction of the LMCA is safe and effective for the treatment of ostial left main stenosis. Re-institution of normal blood flow through the left main coronary artery possibly confers advantages over multiple and sequential bypass surgery to more distal branches.

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ON-PUMP BEATING-HEART LEFT VENTRICULAR ANEURYSM REPAIR: OUTCOMES AND MIDTERM FOLLOW-UP
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Objective: Surgical repair of postinfarction left ventricular aneurysm represents a challenge for cardiac surgeon. Different surgical techniques for left ventricular restoration were described. In the last five years, we adopted an on-pump beating-heart strategy that permits to minimize ischemia and assess wall function and viability to guide closure. This study was undertaken to describe perioperative outcomes and mid-term follow-up of on-pump beating-heart left ventricular restoration.
Methods: From January 1999 to November 2005, 73 patients were referred to our Institute with diagnosis of postinfarction left ventricular aneurysm (LVA). The mean age was 63.7±7.4 years. 94.5% had previous anterior myocardial infarction. Mean preoperative Ejection Fraction (EF) was 37.7%±7.7%. Left ventricular diastolic volume (LVDV) was 180.8±54.0 ml, left ventricular diastolic index (LVDVI) was 96.2±28.4. The coronary angiography showed three-vessel disease in 23 patients. Our surgical approach is divided in 3 steps. At first, coronary artery bypass grafting on left descending coronary artery is performed off-pump beating-heart. Afterward we proceed with on-pump beating-heart LVAs repair and at the end we perform the others coronary bypasses. Aortic crossclamping is only employed to remove ventricular thrombi and for associated valvular procedures.
Results: In our first experience, we used a patch for ventricular restoration (13 patients). Afterwards we preferred a modified linear and circular closure technique (80 patients, 82.2%). In 7 cases, we removed a ventricular thrombus. The mean number of grafts was 2.2±0.6. 61 patients had a graft on left descending coronary artery. Associated procedures included mitral repair in 6 patients, aortic valve replacement in 2, surgical ablation ofatrial fibrillation in 6 patients. Perioperative mortality was 4.1%. The cause of death was multi-organ failure in 2 patients and mediastinitis in 1. One patients requested reoperation for bleeding and one requested implantation of a pace-maker. Postoperative EF was 41.6±8.4%. Postoperative left ventricular diastolic volume was 139.6±42.6 ml (P<0.05), left ventricular diastolic index was 76.9±21.8 (P<0.05). At mid-term follow-up, only one non-cardiac death was registered. The echocardiographic evaluations showed an increase of ejection fraction with no further ventricular dilatation.
Conclusion: On-pump beating heart LVA repair can be performed safely. It permits to avoid long cross-clamping time and myocardial ischemia and to clearly identify vital ventricular wall. The operation is associated with low perioperative mortality and morbidity and permit to achieve at followup an increase of cardiac function and quality of life.

C12b - 27
INFLUENCE OF FEMALE GENDER IN OFF-PUMP CORONARY BYPASS SURGERY
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Objective: Female gender is declared as an independent risk factor for adverse outcome after conventional coronary artery bypass surgery. The profit of female patients from off-pump coronary bypass (OPCAB) surgery, with regard to perioperative morbidity and mortality, is not clearly assessed. The aim of this retrospective clinical study was to evaluate the influence of the gender on the early outcome in OPCAB surgery.
Methods: In a three years period, a total of 225 patients, 49 female and 176 male, with a mean age of 64.7±11.0 years and 63.5±10.7 years respectively, underwent elective OPCAB surgery for multivessel disease at our institution. Preoperative clinical status and incidence of concomitant diseases did not differ in both groups. The operations were performed by the same surgeon. The relationship between OPCAB surgery and clinical outcome with major (MAJ) and minor (MIN) adverse events was obtained by univariate analysis.
Results: The same operative technique was applied for both female and male patient groups. No conversion to conventional coronary bypass surgery with extracorporeal circulation was necessary. Mean number of bypass grafts was 2.6 in the female group vs. 2.4 in the male group. Mean operation time was 141.7±34 min in the female group and 150.2±46 in the male group. The overall inhospital mortality was 1.33% (3 of 225 patients), all of them in the male patient group [P = 0.08]. Male patients showed a higher rate of postoperative atrial fibrillation than female patients (15 vs. 6%), however, this difference was not statistically significant. The incidence for further postoperative complications such as rethoracotomy for bleeding, stroke, delirium, pneumonia and wound infection was similar and also statistically not different in both groups.
Conclusion: Our results show that the early postoperative outcome and the incidence of adverse events were not influenced by gender in OPCAB surgery. The female gender plays not a predictive role for postoperative morbidity and mortality. In selected female patients, OPCAB surgery seems to be more beneficial compared to conventional coronary bypass operations.

C12b - 28
INITIAL EXPERIENCE WITH THORACIC EPIDURAL ANESTHESIA IN OFF PUMP CORONARY ARTERY BYPASS SURGERY IN AWAKE PATIENTS
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Objective: This report will summarize our performance with off pump coronary artery bypass (OPCAB) in awake patients using thoracic epidural anesthesia (TEA) without general endotracheal anesthesia.
Methods: Between April 2002 and March 2005, 10 patients underwent OPCAB with TEA in our hospital. There were 8 males and 2 females. Average patient age was 62.2±7.8. Target vessels involved left anterior descending artery TEA catheter was inserted in all patients on day prior to surgery and TEA was administered perioperatively, and in the postoperative period.

Results: All patients remained hemodinamically and respiratory stable during the procedure, fully alert and conscious. Full median sternotomy was performed in all patients. All patients received LIMA to LAD. Average anastomosis time was 7.9±0.8 min, with average CABG duration of 71.7±22.1 min. Three patients with EF <30% received low dose inotropic support perioperatively and in the immediate postoperative period. Average VAS was 2.1±0.8. This allowed early mobilization in all patients within hours from operation, and 2 patients were able to leave the operating theatre walking to their beds in the intermediate care. Average chest tube drainage was 260±69.8 ml. Chest tubes were removed during the first postoperative day, and patients were to perform limited everyday activities during the first postoperative day. Average inhospital stay was 4.2±1.1 days. There was no mortality or morbidity associated with placement of TEA catheter.
Conclusion: OPCAB in awake patients using TEA without general endotracheal anesthesia can be safely performed in selected group of patients. This approach reduces postoperative pain, allows faster mobilization and recovery, with shortened hospital stay.

C12b - 29
CABG AND CONCOMITANT VALVE PROCEDURES IN OCTOGENARIANS: DOES GENDER DIFFERENCE DETERMINE THE OUTCOME?
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Objective: To evaluate gender difference in the early outcome of patients after CABG procedure with or without concomitant valve procedure.
Methods: From January 2001 to December 2004, we retrospectively investigated 178 patients aged more than 80 years (80 to 89 years, mean age 81.9, 87 women, 91 men) with coronary artery disease (CAD). One hundred and thirty two patients (74.2%) underwent isolated coronary artery bypass grafting (group A), 36 patients (20.2%) had concomitant aortic valve replacement (group B) and 7 patients (3.9%) received concomitant mitral valve operation (group C). Three-vessel disease appeared more frequently in group A (84.1%) than in group B (33.3%).
Results: Mean ejection fraction in all groups was 49% with no statistically significant differences to the other groups. Three-vessel disease appeared more frequently in group A (84.1%) than in group B (33.3%). IMA was being used in 62.9% of all operations and in 71.2% in group A with no gender predisposition. Mean length of stay was 13 days. One hundred and fifty three patients (86%) survived and were discharged from hospital (mean length of stay 13 days). Mortality of men in group A was 6.76%. One hundred and five patients (59.0%) had urgent (70/39.3%) or emergency surgery (35/19.7). Only 12 women (20.7%) in group A compared to 35 men (47.4%) were operated electively. In group B, more women (24/66.6%) than men (12/ 33.3%) had concomitant aortic valve replacement with better outcome (mortality 8.3 vs. 16.7%) than men although undergoing less elective surgery (45.8 vs. 66.7%). Major complications (GIT- bleeding, major neurologic events, pericardial tamponade, cardiac low output, deep sternal wound infection) occurred in 46 patients (25.8%), whereas 16 patients (17.6%) were men and 30 patients (34.5%) were women. Especially in group A the incidence of major complications in women was significantly higher (8 men,10, % compared to 20 women, 34.5%). There was no difference in group B (33.3% vs. 29.2%). Acute renal insufficiency occurred in 39 patients (21.9%) and was more frequent in women (25.9%) than in men (16.2%) in group A, whereas the use of ultrafiltration was more frequent in men (25,0%) than in women (8.3%) in group B.
Conclusion: CABG with and without concomitant aortic or mitral valve surgery in octogenarians can be performed with acceptable results even in patients undergoing urgent or emergency operations. The outcome of men receiving CABG only seems to be better than in women whereas it is better for women undergoing CABG within concomitant valve procedures.

C12b - 30
MOBILE ATHEROMA OF THE AORTI ARCH DIAGNOSED BY TRANSTHORACIC ECHOCARDIOGRAPHY PRIOR TO CORONARY ARTERY BYPASS SURGERY
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Objective: Atherosclerotic lesions especially larger than 4 mm and complex atheromas (with ulcerations on its lumen or with mobile components) of the aortic arch are potential sources of arterial unexplained embolic events, including stroke, TIA and peripheral emboli in the asymptomatic patients. Furthermore the mobile atheromas of the aortic arch are assoiated with increased perioperative strokes in patients undergoing coronary artery bypass surgery. Technical advences in transesophageal echocardiography enabled surgeons and anesthesiologists to obtain a detailed view of the aorta pre/peroperatively and even to quantify atheromatous plaques according to thickness and the presence of mobile components.
Methods: A 65 year-old man with a history of angina on exertion was admitted to our hospital for an elective CABG. He was hypertensive and diabetic both controlled with oral medications. Patient had no neurologic complaints. Central nervous system and cardiovascular system examinations were within normal limits. On Chest X-ray arcus aorta seemed dilated. Coronary angiography revealed triple-vessel disease with a LMCA lesion of 98%. Due to chest X-ray appearence a second echocardiographic evaluation was scheduled. TTE performed at our institution showed minimal aortic regurgitation with an EF of 60% and a mobile atheroma in the arcus aorta with a minimal aortic dilatation. Surgical strategy was modified according to these findings.
Results: Peroperative digital palpation of the aortic arch did not identify significant abnormalities. CABG and arcus replacement operations were performed instead of a standard CABG operation. Patient recovered well without any complications and was discharged on the 12th postoperative day.
Conclusion: Although several variables were identified as risk factors for perioperative stroke, the majority of strokes occur in patients in whom no definitive etiologic factors can be identified. Thorough preoperative echocardiographic evaluation of the patient, especially of the elderly, is crucial for an uneventful surgical outcome. Although TEE is a more sensitive technique in determining protruding aortic atheromas with or without mobile components, TTE can provide some indicative evidence as well.

C12b - 31
SURGICAL OPTION FOR DIFFUSE CORONARY ARTERY DISEASE
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Objective: Fifty seven patients underwent coronary endarterectomy as part of CABG over a period of seven years. Of these, 42 were males and 15 females. Their age ranged between 45 and 68. Forty were diabetics, 34 had severe LV disfunction (EF<30%). Forty six patients underwent routine surgery, remaining 11 emergency surgeries. Endarterectomy was performed for LAD, RCA and circumflex arteries in 27, 16 and 14 respectively. IABP was used in 4 patients. Four patients died in the immediate post-operative period due to low cardiac output and rhythm disturbances. The follow-up period was between 6 months to 3 years. Two patients died after 6 months due to MI and rhythm disturbances. Follow-up was clinical, 2-D echo, X-ray and ECG. Endarterectomy on its own or as an adjunct to CABG is a viable option in cases with diffused coronary artery disease.
Methods: 57 patients underwent coronary endarterectomy as an adjunct with coronary bypass surgery. Under GA all the patients were connected to routine CPB with 2 stage single venous cannula and ascending aortic arterial return (Sarns, Calmed - USA), membrane Oxygenator was used in all patients (Dideco, Polystan). Antegrade cold blood cardioplegia was used in all patients. Coronary endarterectomy was performed in LAD, RCA and circumflex arteries in 27, 16 and 14 respectively. Complete endarterectomy was employed as and when necessary. Saphenous vein was used in 47 patients and IMA was used in 11 patients. IABP support was required in 4 patients. Post-operative stay in the ICU was between 48 to 72 h. Adrenalines, Noradrenaline, ±Dopamine were used. Lignocaine or Cardarone were used to control rhythm disturbances. Reoperation was performed for bleeding in 6 patients.
Results: 4 out of 57 died in the immediate post-operative period due to low cardiac output and rhythm disturbances. 2 patients died at the end of 6 months due to MI. At the end of one year, 10 patients developed grade I Angina. The remaining patients at the end of 3 years needed anti-failure and anti-anginal medications.
Conclusion: Coronary endarterectomy is a viable option in patients with diffuse coronary artery disease where maximal medical therapy did not produce relief. This procedure can be performed along with CABG as an adjunct with acceptable mortality in patients who otherwise were not considered for surgery.

C12b - 32
FIVE-YEAR EXPERIENCE WITH SEQUENTIAL INTERNAL THORACIC ARTERY GRAFTS
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Objective: We present our five-year experience and mid-term results with extensive use of sequential LITA grafts to the LAD territory.
Methods: Between 1996 and 2000, 438 patients (361 males and 77 females, age 59.7±9.7 years) out of 3803 CABG (11.5%) underwent revascularisation of the LAD territory using sequential LITA grafts. Eleven percent of the patients required urgent revascularisation for unstable angina and 9% had poor LV function. 401 patients underwent isolated CABG and 37 had various additional procedures. A total of 1767 peripheral anastomoses were constructed (LITA: 884; RITA: 23; radial artery: 212 and saphenous vein: 648). 28% of the patients had total arterial revascularisation.
Results: The hospital mortality was 2.3% (3 cardiac and 7 non cardiac deaths). There were 9 perioperative myocardial infarctions (2%) including only one case related to the sequential LITA anastomosis. The follow up was 96.5% at 4.5?1.3 years. The late mortality was 6.5% (8 cardiac and 20 non cardiac deaths). Three hundred and forty four patients were in NYHA I functional class. All symptomatic patients (51 cases) underwent recoronarography 36.7±19.7 months after surgery. A total of 232 peripheral anastomoses were restudied. The patency rate was 96% for LITA, 100% for RITA, 69% for radial artery and 74% for saphenous vein grafts. Altogether 12 patients required reintervention (11 PTCA and 1 redo revascularisation). The actuarial freedom from reintervention was 96.3% at five years.
Conclusion: The LITA can be safely used as a sequential graft to the LAD territory with reproducible mid-term results. It is especially useful in young patients requiring total arterial revascularisation.

09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

11TH VASCULAR SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

V11 - 1

INHIBITION OF POSTOPERATIVE INTIMAL HYPERPLASIA WITH DEFIBROTIDE

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Objective: Intimal hyperplasia is responsible of many medium to long term failures of arterial interventions in vascular and cardiac surgery. None of the drugs tested up to date has clearly demonstrated to prevent such complication. Objective of this paper is to determine if Defibrotide prevents intimal hyperplasia after arterial damage in an experimntal model on rabbits.
Methods: In August 2005 we submitted 12 male rabbits to a 1 cm longitudinal subrenal aortotomy with brushing of the intima and direct suture with 7-0 polypropilene. The operated rabbits were divided in two groups (6 rabbits per group), group "A-treated" was administered 20 mg of defibrotide i.m/die preoperatively and for the eight days following surgery, group "B-untreated" received saline solution in the same doses and times. All rabbits were stabulated for 30 days, then sacrificed and submitted to explantation of the aorta. In addition to the 12 operated rabbits we sacrificed 4 rabbits as controls (group "C-control").
Results: The explanted segments were fixed in 10% formaldehyde, processed and included in paraffine, these were the cut in sections of 3 microns, fotographed and analyzed with KS300 programme (Zeiss). The mean thikness of the aortic wall in group A was 2.175 (1.91-2.90) mm, in group B 3,285 (2.075,07) mm and in group C 1.2 (0.93-1.68). We then applied T test to these data resulting in a significancy >0.05.
Conclusion: This study demonstrates that administration of defibrotide prevents intimal hyperplasia in an experimental model. Considering the encouraging results of this work, and that defibrotide is a drug commonly administered in clinical practice for phlebological diseases, we are now preparing a randomized prospective study in the Human Being.

V11 - 2

COMPARATIVE CHARACTERISTICS OF PRO- AND ANTIOXIDANT BIOCHEMICAL REACTIONS OF THE PATIENTS WITH OBLITERATING ATHEROSCLEROSIS OF LOWER EXTREMITIES ARTERIES

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Objective: To study pro- and antioxidant status of the patients with obliterating atherosclerosis of lower extremities arteries.
Methods: The activity of antioxidant system enzymes was studied (superoxide dismutase, catalase, glutathionperoxidase) and concentration of peroxidation of lipids metabolites (malonic dialdehyde, dien conjugates, attending cetotriens) which gave an opportunity to determine pro-and antioxidant status of the patients with obliterating atherosclerosis on the IIa - IV stages of the disease according to Fontein - Pokrovsky classification. The activity of superoxide dismutase was examined with the help of biochemical analyzer, of catalase, glutathionperoxidase by the spectrophotometrical method. The peroxide status was assessed by specrtophotometrical determination of in blood. The patients were divided into three groups: I (control) 60 patients given traditional conservative therapy, II - 30 patients before and 5 days later after revasculising operation on arteries, III - 30 patients before and after indirect revasculising operation.
Results: The first group - the superoxide dismutase activity was 18% (P<0.02) lower than normal, catalase - 3% (P>0.05) lower, glutathionperoxidase - 13% (P<0.05). The concentration of malonic dialdehyde, dien conjugates and attending cetotriens was 55%, 32%, 11% higher than normal accordingly. The second group: before operation the superoxide dismutase activity 4% (P>0.05) higher than normal, catalase - 11% and glutathionperoxidase - 39% lower than normal. The concentration of malonic dialdehyde, dien conjugates was 28% and 43% higher than normal accordingly. After the operation the decrease of the superoxide dismutase activity, of catalase accordingly on 47% and 16% in comparison with the normal quantity, the increase of the malonic dialdehyde and dien conjugates concentration on 41% and 38% was registered. The third group: the superoxide dismutase activity before the operation was within normal quantity, catalase decreased on 18%, the concentration of malonic dialdehyde and dien conjugates exceeded the normal quantity on 51% and 48% accordingly. After the indirect revasculization the superoxide dismutase activity and catalase were within the normal quantity, the concentration of malonic dialdehyde and dien conjugates decreased considerably than after revasculising operations on arteries on 30% and 32%.
Conclusion: the conservative therapy has no considerable influence on the restoration of the balance of pro- and antioxidant systems. Neither was the balance registered after revasculising operations on arteries. Considerable effects of the restoration of pro- and antioxidant systems are found with the patients after the indirect revasculising operation.

V11 - 3

RESULTS OF TREATMENT OF CHRONIC LOWER LIMB ISCHEMIA BY GENE TRANSFER OF VASCULAR ENDOTHELIAL GROWTH FACTOR AND ANGIOGENIN

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Objective: The results of treatment of lower limb ischemia are not satisfactory in patients with extensive disease involving the tibial segments (so-called "distal" forms of disease) because high peripheral arterial resistance and severe insufficiency of arterial bed. Last years, gene therapy is regarded as a potential strategy for the treatment of vascular diseases despite of its limitations.
Objective: to evaluate preliminary results of gene therapy using vascular endothelial growth factor (VEGF) and angiogenin (ANG) genes in complex treatment of chronic lower limb ischemia.
Methods: The study was carried out on 15 patients (13 men, 2 women) aged 42 to 70 years with distal forms of lower limb arterial occlusive diseases. Etiology of the disease was atherosclerosis in 13 patients (including 2 cases associated with diabetes), non-specific arteritis was diagnosed in 2 patients. Distance to pain ranged from 40 to 150 m. Three patients had small trophic ulcers on toes. Complex examination including special methods (duplex scanning, tredmil-test, angiography, percutaneous detection of tissue oxygen tension, radionuclide imaging) was made in all the patients before and after gene transfer procedures. Gene constructions (naked and adenoviral recombinant plasmids) with VEGF (6 patients) and ANG (9 patients) were administered by intramuscular injections into tibial muscular group. These plasmids are original, and they have been successfully tested in our preliminary experimental studies. Before clinical study each patient has signed informed consent, the study was supervised by ethical committee.
Results: There were no side effects in majority of patients apart from 4 cases of low grade fever during first day after ANG-construction injection. Long-term results were evaluated in 9 patients, the follow-up ranged from 6 to 24 months. All the patients demonstrated positive clinical.
Results: increase of distance to pain in 3 - 5 times, healing of trophic ulcers. Special methods of examination revealed increase of ankle-brachial index (P = 0.05), tissue oxygen tension (P<0.05), perfusion of lower extremities muscles (P<0.05), and reduce of restoration time during tredmil-test (P<0.01). Safety of extremities was 100%. There were no any symptoms of internals affection.
Conclusion: Gene therapy using VEGF and ANG demonstrates the positive results in complex treatment of the patients with distal forms of chronic lower limb ischemia. The final conclusion about effectiveness of this methods requires additional studies.

V11 - 4

THE EFFECT OF GADOLINIUM CHLORIDE ON RENAL INJURY IN THE MODEL OF EXPERIMENTAL AORTIC ISCHEMIA-REPERFUSION

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Objective: The aim of the present study was to examine the effect of gadolinium chloride on aortic occlusion-reperfusion induced remote organ injury in kidney by assaying antioxidant enzymes in the kidney tissues.
Methods: Thirty-two rats were randomly allocated to four groups as follows. Group 1 (n = 8) underwent sham laparotomy, group 2 (n = 8) underwent Kupffer cell blockage plus sham laparotomy, group 3 (n = 8) underwent aortic ischemia reperfusion and group 4 (n = 8) underwent Kupffer cell blockage plus aortic ischemia reperfusion. Kupffer cell blockage was done by 10 mg/kg intravenous gadolinium chloride 24 h before the surgical procedures. Aortic ischemia-reperfusion was done by placing an autraumatic microvascular clamp across the infrarenal abdominal aorta for 30 min and then removing

the clamp for subsequent reperfusion for 60 min. Tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase were assayed in the rat kidneys.
Results: The tissue levels of superoxide dismutase, catalase, malondialdehyde and the activity of myeloperoxidase in the aortic ischemia-reperfusion group were significantly higher than in the other groups ($P<0.05$). However, the tissue levels of superoxide dismutase, catalase, malondialdehyde and the activity of myeloperoxidase in the Kupffer cell blockage plus aortic ischemia-reperfusion group were significantly lower than in the aortic ischemia-reperfusion group ($P<0.05$).
Conclusion: This experimental study showed that Kupffer cell blockage with gadolinium chloride attenuates ischemia-reperfusion injury in kidney induced by infrarenal aortic occlusion-reperfusion. We think that additional studies are needed to clarify the possible beneficial effect of pretreatment with gadolinium chloride in reducing renal complications caused by aortic ischemia-reperfusion during aortic surgery.

V11 - 5
SECONDARY AMPUTATION IN DIABETICS AFTER INFRAINGUINAL REVASCULARISATION
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Objective: Is to analise reasons of secondary amputations after infra-inguinal revascularisations. Survival dia-betic patients with infrainguinal revascularisation. Asessment of importance preoperative evaluation below knee vascular tree as indicator of patency. Importance of asessment below knee vascular tree as indicator of patients survival.
Methods: Patients where bypassed ant desobstructed arterial tree. It was formed two groups I Ischemia and II Infection. Below knee vascular tree where asessed through Morton scale and outcome where asessed after 7 days, 6 months, two and five years using “life table” method. All data where statisticly analised.
Results: At 177 extremites where done secondary amputation after revascularisation during last five years. From this count 63 (39.98%) where in I and 114 in II group. In patients in I group 32 where in stadium III (Morton) and in II group only 14 extremites and in III stadium and 64 in stadium I. Much more patients where died in I group in last two years.
Conclusion: More often couse of amputation is infection than ischemia i early period. Late amputation are coused by ischemia. In the I group below knee vascular tree is worse than in the group II. Mortality is greater in I group as well as revascularisation patency.

V11 - 6
CLINIC AD RIABILITATIVE FOLLOW UP OF ARTERIOPATIC AND AMPUTATED PATIENT
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Objective: is to check the results of an adeguate follow-up of the amputed patient, in particulary about the prothetic and riabilitative problems.
Methods: In the period between January 2001 and december 2004, 66 patients have been undergone to an amputation operation. It has been done 71 operations: 30 transfemoral level, 22 transtibial, 10 transmetasal and 9 transphalanx.
Results: For 8 patients (7 subordinate to transtibial operation and 1 a transmetarsal operation) the post surgery course has been complicated from dehiscence of the surgical wound. For 5 patients subordinate to a transtibial amputation, one has recourse to an elevation of the amputation’s level of the thig. 6 patients die for the case of pretibial neurinoma and 1 die for the skin erosion caused from the femoral osseus stump. Subsequently 14 patients have been undergone (2-5 years) rivascularization operations of the controlateral limb. 39 patients have been undergone to a complete post surgeon rehabilitating cycle. The result has been valued according to the chen classification modified, that take in consideration the autonomy degree reached from the patient after 1.3-5 years from the operation. Among these patiens, 2 patiens have reached the second degree and 12 patients the third degree. Among 27 patients, it was not possible to do a complete rehabilitating cycle cause the advanced age, associated to compromising health conditions or organizative sanitary of familiar problems.
Conclusion: Our experience shows as a correct surgeon technic, associated to a strict monitoring of the threated limb, of the controlateral and the complete rehabilitating cycle, allows a good functional recovery of the limb and improves the life quality of the patient.

V11 - 7
REMOTE ENDARTERECTOMY IN THE TREATMENT OF SUPERFICIAL FEMORAL ARTERY OCCLUSIVE DISEASE
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Objective: Recently the basic reconstruction types of arteries of lower extremities are autovenous shunting operations and shunting operations using synthetic grafts. Potentialities and appropriateness of the remote femoropopliteal endarterectomy with the Ring Strip Cutter device are still uncertain. The purpose of the present research is evaluation of early and long-term results of remote endarterectomy in the treatment of SFA occlusive disease.
Methods: From 1998 to 2000 148 consecutive Ring Strip Cutter procedures were performed in 134 patients. Enrollment of patients was equally over the years. All patients suffered from Superficial Femoral Artery long segmental occlusion or multiple stenosis and had a patient supragenicular artery with at least one crural runoff vessel. Pokrovskii classification was used to asses the stage of ischemia. Follow-up consists of clinical evaluation, Doppler, duplex scanning, and angiography on indication. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.
Results: Indication to operation in 96 (64.9%) cases was a severe limb ischemia, in 52 (35.1%) cases - an intermediate claudication less then 100 m. At early postoperative period due to thrombosis and ineffectiveness of repeated operative measures 5 above-knee amputations were performed. Thus, limb salvage rates in this period - 96.6%. The five year primary and secondary patency are 48.9% and 55.7% respectively. Primary patency in Pokrovskii IIb group was 52% after five years. This parameter was lower in patients with severe limb ischemia - 34.1% ($P<0.01$). Essential circumstance at studying the long-term results was the high percent of saved extremities. Five-year limb salvage rates after remote endarterectomy were 71%. Life table analysis shows a fiveyear limb salvage rates in groups of patients who were classified as Pokrovskii III and IV - 62.3% and 45.1%, respectively.
Conclusion: Remote endarterectomy with the Ring Strip Cutter is an effective, minimal invasive procedure. It also leaves all other options for conventional bypass available. The high five-year limb salvage rates after remote endarterectomy were achieved because of high possibilities to perform a repeated intervention. Using this technique we have a chance to save and enhance collateral circulation in operated and distal segments. Remote endarterectomy of superficial femoral and popliteal arteries enables not only to keep autologous vein for various cardiovascular operations and to avoid application of synthetic grafts, but also provides high enough percent of limb salvage in the long-term postoperative period. Especially this parameter is significant at patients with a severe limb ischemia (Pokrovskii classification III and IV).

V11 - 8
SURGICAL TREATMENT OF INFRARENAL ABDOMINAL AORTIC ANEURYSM IN PATIENTS AGE 70 YEARS OR OLDER
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Objective: Severe atherosclerosis is a major contributor for death in septuagenarians and octogenarians. The most surgeons, referring to severity of interventions on aorta, prefer waiting tactics in septuagenarians and octogenarians, suffering abdominal aortic aneurysm. The purpose of our research is the estimation of perspectivity and expediency of abdominal aortic aneurysm surgical treatment.
Methods: From 1997 to 2003 290 patients were followed-up. In main group were included 138 septuagenarians and older with infrarenal aortic aneurysm (71-91 years). Resection of aneurysm with it replacement was performed in 80 patients, 48 patients - refused from operation. The second

group was made by 152 patients (110 operated and 42 not operated) with similar disease. They were younger 70 years. After aneurysm resection aortobifemoral grafting was performed in 83% cases. In 17% cases we used linear graft. Enrollment of patients was equally over the years. Follow-up consists of clinical evaluation, Doppler, duplex scanning, CT and angiography on indication. Patency was assessed by clinical examination and duplex monitoring. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.
Results: The postoperative lethality in the first group has made 6.6% and statistically did not differ from a similar parameter - 6.2% at younger patients (p >0.05). It is necessary to note, that all not operated patients, irrespective of age, within five years were died. Ruptured aneurysm was the cause of mortality in 65% cases. No statistical significant differences were seen in mortality rates in that group when looked at aneurysm dimensions and time of its rupture. Life table analysis in groups of the operated patients shows a five years survival rate of 75% and 77% (P >0.05), respectively.
Conclusion: Diagnosis aneurysm of infarenal aorta should serve as indication for operative treatment without dependence from age and the sizes of expansion due to almost 100% a five years mortality rates in nonoperated patients.

V11 - 9
LONG-TERM RESULTS OF CAVACLIPING FOR PREVENTION OF PULMONARY EMBOLISM
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Objective: To evaluate the protective effect of cavacliping of infrarenal vena cava inferior (IVC) in patients with a high risk of pulmonary thromboembolism.
Methods: Seven hundred and thirty-five surgical cavacliping of infrarenal IVC and 5 - of suprarenal IVC were performed in period from 1986 till 2005 with purpose to prevent the pulmonary artery thromboembolism in patients with phlebothrombosis in venous system of IVC (inguinal, pelvic or lower extremities veins). Presence of floating thrombus in veins according to duplex scanning or phlebography data and history of previous episode of pulmonary artery thromboembolism were considered as an indication for the cavacliping of IVC. The originally designed in 1986 cavaclipse made of titanic wire 0.8 mm diameter was applied in most patients. The long-term results were evaluated in 254 consecutive patients (men - 69, women - 185, in which 37 were pregnant and 39 - early after delivery with floating thrombus in pelvic veins) with mean age 47±25 years (the range 22-86). The mean follow-up was 8.2 years. All patients, who underwent the procedure less then 2 years ago, were excluded from the study. Postoperative evaluation late after surgery included clinical examination, laboratory tests (INR, full coagulogram) and complete evaluation of the venous system condition (thoracic X-Ray, CT, Dopplerography of veins, MRI, phlebography of IVC, angiopulmonography, etc.). Quality of life was estimated using modern methods of standardization.
Results: According to the intraoperative records, floating thrombus of the iliofemoral veins (n = 670) were found to be most frequent source of pulmonary embolism. Other sources of thromboembolism were veins of pelvis minor (n = 39), femoral veins (n = 17) and deep veins of shins (n = 14). Analysis of long-term results revealed the following complications of the cavacliping of IVC: 1) retroperitoneal fibrosis because of organized hematoma - 2 cases; 2) elongated thrombosis of the pulmonary artery's branches originated from a fixed ostial pulmonary trunk thrombus - 3 cases (2 cases - lethal outcome, 1 case - successful thrombectomy from PA) 3) Postthrombophlebithic syndrome - 35 cases, in which thrombectomy was not performed during the cavacliping procedure.
Conclusion: ?avacliping of infrarenal IVC in patients with a high risk of pulmonary thromboembolism using originally designed cavaclipse is a safe and reliable method of prevention of recurrence of pulmonary thromboembolism in cases of presence of floating thrombus in IVC venous system. Cavacliping does not affect the venous blood flow through IVC. Method can be recommended for use in a wide surgical practice.

V11 - 10
RUPTURED ABDOMINAL AORTIC ANEURYSM
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Objective: Rupture of abdominal aortic aneurysm (RAAA) is a condition with rather high mortalitiy The objective is to evaluate velue of hemodynamic stability as a prediction of outcome RAAA.
Methods: On Vascular Surgery Department of the University Surgical Institute, in a five year period (1999–2004.), 105 patients were operated with a diagnosis of abdominal aortic aneurysm of which 31 were ruptured. Three groups of patients were evaluated: group I - stable patients without signs of hemorrhagic shock on admission to hospital (systolic blood pressure >90 mmHg, diuresis more than 50 ml/h, palpable peripheral pulses), group II - patients with mild to moderate state of shock on admission (systolic blood pressure <90 mmHg, oliguria, filiform peripheral pulses), and group III -patients in profound shock condition (unmesurable blood pressure, anuria, no peripheral pulses).
Results: Ten patients (32.26%) belonged to group I, only four patients (12.90%) were classified as group II, and 17 patients (54.84%) were related to group III. Standard aneurysmectomy, with tubus or bifurcated prosthesis implantation, was performed in all cases. Results of outcome presented most complications as well as the highest selective mortlity rate in a group III with profound shock (70.93%), with an acceptable mortality rate for group I of patients (10.00%) with no signs of shock. Total complications (45.16%) and mortality rate of 48.38% shows a good level of operative technique as well as intensive care unit treatment.
Conclusion: Results confirmed that hemodynamic stability on admission is a factor that correlates with a complications and mortality rate in a RAAA patients.

V11 - 11
RUPTURED ABDOMINAL AORTIC ANEURYSMS - UNIVERSITY CENTER EXPERIENCE
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Objective: Rupture of abdominal aortic aneurysm (RAAA) is still associated with high mortality despite modest improvement during the last several years. The recent mortality in large series is between 25-55%. The aim of our study was to evaluate the results of the open surgical treatment of RAAA and to introduce the first few cases of endovascular RAAA repair (EVAR) at the University Vascular Center.
Methods: 187 patients were operated on for RAAA between 1/1/1992 and 31/10/2005. Men to female ratio was 7:1, the average age 75.8±7.2 years.77.5% patients suffered in anamnesis from heart attack, 54.2% were hypertonics and 45.3% smokers. 43.1% patients had hemoperitoneum and 16.9% were cardiopulmonary resuscitated on admission. All patients were indicated for urgent open surgery, only hemodynamically stabled patients without clear signs of RAAA were examined by bedside ultrasonography on emergency unit or by multisliced computed tomography. Last four hemodynamically stabled patients were solved by EVAR. Tubular grafts were used whenever were applicable in open repair, uniiliac or bifurcated grafts were used in EVAR.
Results: 30 days postoperative mortality was 33.6% in open and 0% mortality in EVAR procedures. Hemorrhagic shock and cardiac insufficiency were the main causes of patients death (29.4%). The statistical significant factors of mortality were: incorrect diagnosis (P<0.001), cardiac arrest on admission (P<0.001), hemorrhagic shock(P<0.02) and hypertension (P<0.05).
Conclusion: The open surgery is still the good standard for RAAA treatment. The results of resections are dependend on vascular surgeons experience, prompt diagnosis, aggresive volume resustitation and postoperative care on intensive care units. EVAR is the method of choice in hemodynamically stabled patients. It requires experienced endovascular team with 24 h servis.

V11 - 12
SYSTEMIC INFLAMMATORY RESPONSE SYNDROM IN PATIENTS WITH MASSIVE DEEP VEIN THROMBOSIS
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Objective: Systemic inflammatory response syndrome (SIRS) without invading microorganisms leads to profound activation of the white blood cells, platelets and endothelial cells. There are many cardiovascular diseases that can lead to SIRS. In patients with deep vein thrombosis (DVT) the systemic inflammatory response syndrome is characterized by activation of coagulation associated with thromboembolic complications. The aim of this study was investigated

the role of SIRS in patients with massive DVT and to evaluate the effectiveness of aprotinin therapy.
Methods: We observed 38 patients for two years with symptoms of severe deep vein thrombosis of the limbs. All patients were followed-up daily to record the number of SIRS criteria. Patients were given a SIRS score of 0, 1, 2, 3 or 4 on each day depending on the number of SIRS criteria present. For scoring, the methodology originally described by Bone R. et al. was used. All patients received standard heparinotherapy with warfarin and antiplatelet drugs. In 18 cases we added aprotinin intravenously in dose - 700 000-900 000 ED associated with body weight.
Results: Thirty-four (94.4%) patients with massive DVT had two and more SIRS criteria duration 4-12 days. As a result of regression analysis all patients with duration two and more SIRS criteria after 5 days of the hospital stay had thromboembolic complications in 8 (21.1%) cases. From 34 patients we were randomly assigned to receive either standard anticoagulant therapy (30 patients) or added aprotinin (8 patients). In a group of aprotinin we were noticed the decrease of swell and pain, in a 3 days after aprotinin therapy were fixed the decrease an account of white blood cells and temperature in these patients (P<0.01). Activated thromboplastin time in group of aprotinin was 40±3 s vs. 34±2 s in control group in a 1 days and 48±2 s vs. 36±4 s in a 2 days after was administrated heparin. So was registered the decrease of plasma D-dimer level in aprotinin group - 2000±200 ng/ml vs. 5500±350 ng/ml in control group (P<0.001). In aprotinin group we won't notice cases of thromboembolic complication. Hospital stay was 10.4±2 days vs. 18.3±4 days (P<0.001).
Conclusion: Systemic inflammatory response syndrome is a unique pathophysiological reaction on a different damage. Massive deep vein thrombosis can associated with this syndrome, duration of it is reliable correlated with thromboembolic complications. High dose of aprotinin can improve results of treatment patients with massive deep vein thrombosis.

V11 - 13
TACTICS OF TREATMENT OF PATIENTS WITH INFECTED VASCULAR ALLOTRANPLATATIONS
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Purpose: Definition of surgical tactics at infected vascular allotransplantations remains to one of the challenges of vascular surgery. The high risk and complexity of performance of repeated operations in some cases determine a choice of conservative methods of treatment.
Methods. Active - waiting tactics has been applied by us at treatment of 9 patients with infected vascular allotransplantations. The choice of such tactics was determined by a line of the reasons among which it is necessary to note high danger of development in the early postoperative period of serious complications, sharp ischemia of the finiteness resulting in amputation. Treatment of this group of patients consist in general antibacterial therapy in a combination to local use of anti-bacterial preparations. And only development arrosione bleedings from a zone anastomosis served as the indication to operative treatment.
Results: At all patients of this group, despite of spent complex treatment (the general and local), has developed arrosione a bleeding demanded emergency operation. At 3 patients in view of hopelessness of preservation of finiteness already during operation the decision on performance of amputation of a leg at a level of the top third of hip was accepted. At 5 patients of amputation have been executed in the nearest postoperative period, thus 2 from them were lost from developed com-plications. Only in 1 case removal of an infected transplant has not caused development of a sharp ischemia of finiteness, that in the subsequent has allowed to execute reconstructive operation.
Unsatisfactory results of active - waiting tactics of treatment have caused necessity of re-alization of other way of the decision of this problem - obligatory performance of repeated opera-tions. In this group of patients (19 person) for 7 patients it has been diagnosed infection trombosis vascular transplants, and at 14 patients attributes infected are marked at functioning artificial limbs. Trombosis the artificial limb at 7 patients has been removed without complications. Removal of functioning artificial limbs at all patients of this group has caused development of a sharp ischemia of legs I B -II ? of the item, stoped by intensive conservative actions. At 2 patients with the com-pensated blood circulation in finitenesses repeated operations did not carry out. Only at 1 patient the developed sharp ischemia of finiteness has caused performance of amputation at a level of average of 1/3 hips. 11 patients of this group in 3-6 months have executed repeated reconstruction with posi-tive result.
Conclusions: Thus, active - waiting tactics at infection vascular allotransplantations de-termines unsatisfactory results of treatment of this group of patients. Performance of obligatory op-erative interventions with removal of an infected artificial limb and the subsequent reconstructive operation is the most perspective method of treatment of patients at infection vascular allotransplantations.

V11 - 14
CAROTID DISEASE AND CEREBRAL ISCHEMIC EVENTS IN THE PATIENTS WITH CORONARY ARTERY DISEASE
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Objectives: Coronary artery disease and myocardial infarction are the risk factors of cerebral ischemic events. However, the causes of ischemic strokes in these patients may be different. We investigated the severity of carotid atherosclerosis, frequency and causes of TIA and ischemic strokes in the patients with coronary artery bypass.
Methods: We investigated two groups of the patients. Group 1 - 182 patients (mean age 56.8±0.63 years old) with coronary artery bypass, including 34 (18.7%) women, 148 (81.3%) men. Group 2 - 104 patients (mean age 58.6±0.71 years old) with carotid endarterectomy, including 26 (25%) women, 78 (75%) men. Duplex scan, transcranial Doppler ultrasonogra-phy, brain computer tomography, echocardiography, blood examination (serum lipids) were performed in all the patients.
Results: The athero-sclerotic risk factors (high blood pressure, diebetes mellitus, smoking, family history, dyslipidemia in the patients of both groups doesn't differ significantly (P>0.05); atrial fibrillation, angina pectoris, myocardial in-farction were significantly more frequent in the group 1 (14.3%, 100%, 74.7% against 8.7%, 66.3%, 26.9%, P<0.05), peripheral atherosclerosis is more frequent in the group 2 (48.1% against 23.1%, P<0.05). We found carotid stenoses and/or carotid occlusions in 87 (47.8%) of the 182 pa-tients with coronary artery bypass; including less then 50% luminal stenoses - in 38 (20.9%) patients, 50-75% stenoses - in 24 (13.2%) patients, high-grade stenoses (more than 75%) - in 11 (6.1%) patients, oc-clusions - in 14 (7.7%) patients. It turned out that 42 (23.1%) of patients with coronary artery bypass had ischemic stroke or TIA; out of them 11 (6,0%) patients suffered TIA, 19 (10.4%) - ischemic stroke in the carotid region, 8 (4.5%) - ischemic stroke in the vertebral-basilar region, 4 (2.2%) - the combination of TIA and stroke. It appeared that 40% of ischemic strokes were due to symptomatic carotid atheroma and 47.3% of ischemic strokes most probably due to cardiogenic embolism (P>0.05) in patients with coronary artery bypass.
Conclusions: About half of the patients (47.8%) with coronary artery disease (group 1) had carotid stenoses. Every sixth patient in this group had the high-grade carotid stenoses and/or occlusions. Symptomatic carotid stenosis and cardiogenic embolism were the cause of cerebral ischemic events in equal proportion in the patients with coronary artery bypass.

V11 - 15
STRUCTURE, OUTCOMES AND LONG -TERM RESULTS OF INFERIOR VENA CAVA INJURIES
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Objective: Injuries of the inferior vena cava (IVC) continue to be among the most frequent trunkal vascular injuries with high mortality. The aim of study was to conduct retrospective analysis of structure and results of rendering of aid patients with IVC injuries in various medical establishments of Belarus from 1984 through 2003 years.
Methods: For reception of the information of patients with ICV injuries has been demanded of documentation to 102 patients (6 patients in period from 1 month till 12 years were investigation with both ultrasound and spiral computed tomography for analysis of the long-term results).
Results: Mechanism of injuries included penetrating injuries in 69 (67.5%) patients, blunt trauma in 29 (28.2%), gunshot in 4 (4.3%) patients. There depending on anatomic localization of an IVC injury, the cases were distributed as follows: in the field of vv. illiaca communis confluence - 7 cases, infrarenal and renal segment - 53, suprarenal one -22, retro- and suprahepatic ones - 20 cases. Associated injuries were common, only four patients (3.9%) had an IVC injury in isolation. Injuries were treated using primary suture repair - 72 (90%) patients, caval ligation - 5 (6.2%), and prosthetic

grafting - 3 (3.8%) cases. 55 patiens (53.9%) died. Mortality of the patients with injuries of supra- and retrohepatic segment of IVC composes 100%, suprarenal - 70%, infrarenal - 30.7%. In 2 of 6 patients detections stenosis IVC in the field of suture. At 1 patient with caval ligation had significant edema of the lower extremities with dilatations lumbar veins.
Conclusion: Trauma IVC - the emergency surgical pathology demanding steadfast attention at all stages of medical care. It is necessary to patient with ICV injuries examination on the eve and in the nearest period (from 1 up to 3 month) after to be discharged from hospital.

V11 - 16
COMPLEX TREATMENT OF VENOUS AND ARTERIO- VENOUS FORMS OF ANGIODYSPLASIA OF THE LOWER LIMBS
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Objective: To improve the results of treatment of patients with venous and arterio-venous (A-V) forms of the lower limbs angiodysplasias, on basis of provision with patogenetically proved differential approach to a treatment based on the data of the special examinations methods. There were analyzed the results of the examinations and surgical treatment of 112 patients with venous and *A-V* forms of lower limbs angiodysplasia, who were treated in period 1999-2005.
Methods: ultrasonic scanning, radiopaque phlebography, lymphography, arteriography, computer-aided tomography, roentgenography of extremities bones. Taking into account angiodysplasia's clinical forms surgical treatment was varied, depending on patogenetic disturbances and in most cases it was staged. In the treatment of venous forms, which are accompanied by the anomaly of deep venous system's, surgical treatment involved the implementation of venous rehabilitations including the subcutaneous veins profundisation with the object of replacement of hypo- or aplasia venous main; in cases of valvular agenesia - transplantation of veins segments, in the position of superficial femoral and/or popliteal vein). On the next stage the correcting veins operation was carried out, and was combined with dissection of angiodysplasia formations and/or with compressive sclerotherapy. In the cases of deep venous aplasia we limited procedures by correcting veins operations and/or compressive sclreotherapy. In the cases of A-V forms we used, depending on indications, selective arterial vessels embolisation. In patients with trophic disturbances we carried out dissection of ulcers with following staged allo- or autodermoplactic. In cases of patients with venous hemangiomas the main treatment method was sclerotherapy using the solution of aetoxisclerol and fibrovein, and combined treatment with a sclerotherapy. The treatment also involved operations on bones with the object of length's correction. The important component in complex treatment was compressive therapy prescription. Used tactics of treatment allowed to achieve satisfactory results in 83% of patients.

V11 - 17
BALLOON ANGIOPLASTY AND STENTING IN TREATMENT OF OCCLUSIVE AND STENOTIC SUBCLAVIAN VEIN INVOLVEMENTS
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Objective: To improve diagnostics and results of treatment of occlusive and stenotic subclavian vein involvements on the basis of carrying out of roentgenoendovascular interventions.
Methods: Under our supervision from 2000 until 2004 there were 10 patients with occlusive and stenotic involvements of stenotic veins. Age of patients is from 18 - 55 years, among them 6 men and 4 women. Changes of cardiac- and regional venous hemodynamics (Echo CS, rheoplethysmography, ultrasonic scanning of the main veins with Aloka SSD 500; Logiq 500 with gauges 5; 7.5 and 10 MHz) were studied. All patients have been done phlebography. The stenosis of subclavian veins of 75-90% lumens is detected. It is carried out catheterization of subclavian veins by catheters 5F-6F, then balloon dilatatation by the catheter 10F with the subsequent installation of Z- stent <<Endos>>. During the first 6 days it was the heparinotherapy with the subsequent transition on warfarin.
Results: The lumens subclavian veins is restored on 80-100%. The regression of clinical symptoms was noted in the early postoperative period. After carrying out of endovascular procedures the gradient of pressure was decreased up to 14.7-10 mm of waters or it absolutely disappeared; the volume of member was decreased and the edema disappeared. All patients have been restored work capacity.
Conclusions: Positive experience of the balloon dilatation and stentic of subclavian veins allows to eliminate the regional hemodynamics disturbance in basin of subclavian veins and to receive constant positive result of treatment. Endovascular recanalization of subclavian veins is a not traumatic and an effective method of treatment.

V11 - 18
INFLUENCE OF ARTHERIAL HYPERTENSION ON BRAIN CIRCULATION IN CAROTID OCCLUSIVE DISEASE PATIENTS. THE PECULIARITIES OF ANTIHYPERTENSIVE TREATMENT
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Objective: Antihypertensive treatment is the most important in stroke prevention. But we don't know what in-fluence has lowering of blood pressure due to medicinal treatment on brain circulation in patients with carotid occlusive disease, and the measure of the safe hypotension for those patients.
Methods: We carried out transcranial Doppler ultrasonography in patients with unilateral carotid occlusion, among them 40 hypertensive patients (29 (72%) men, 11 (28%) women, mean age 58.13±1.12 years old) and 19 normotensive patients (17 (89%) men, 2 (11%) women, 55.42±1.61 years old, $p>0.05$). We evaluated cere-bral blood flow velocity in the middle cerebral artery in the occlusive region and on the opposite side; cerebrovascular reactivity to hypercapnia in the middle cerebral artery by calculating the breath-holding index. We had undertaken antihypertensive therapy in 90 patients (67 (74.4%) men, 23 (25.6%) women, mean age 56.8±1.04 years old) with high-grade sthenosis or occlusion of carotid arteries during 3-6 month. All the patients underwent transcranial Doppler ul-trasonography before treatment and at the end of the treatment.
Results: Cerebral blood flow velocity in the mid-dle cerebral artery in the occlusive region and on the oppo-site side wasn't significantly different in hypertensive and normotensive patients. Normotensive patients had significantly higher cerebrovascular reactivity to hypercapnia in the occlusive region (1.22±0.03 against 1.14±0.02, $P<0.05$). We studed the group which underwent antihypertensive treatment (90 patients). We applied statistical analysis using T-criterion for correlative groups. Blood pressure before treatment was: systolic - 159.94±1.65 mmHg, diastolic 96.17±0.71 mmHg. At the end of treatment it was: systolic - 143.11±1.43 mmHg, diastolic 87.22±0.73 mmHg, $P<0.01$. The lowering of blood pressure was: systolic - 10.52%, diastolic - 9.31%. Cerebrovascular reactivity to hypercapnia had significantly risen in occlusive region (1.14±0.01 before treatment, 1.18±0.01 at the end of treat-ment, $P<0.01$) and in the opposite region (1.21±0.01 before treatment, 1.23±0.01 at the end of treatment, $P<0.05$). There was no veritable change of cerebral blood flow velocity. During the treatment patients had no strokes, TIA.
Conclusions: Normotensive patients have higher cerebrovas-cular reactivity to hypercapnia in occlusive region. This could be an outcome of the blood pressure influence on brain circulation compensation in occlusive region. The lowering of blood pressure by 10.52% (systolic) and 9.31% (diastolic) was safe for patients with severe carotid disease and improved cerebrovascular reactivity.

V11 - 19
OUR SURGICAL TREATMENT RESULTS IN THE AORTOILIOFEMORAL OCCLUSIVE DISEASE: MIDDLE-TERM FOLLOWING AND EXAMINATION IN A SERIES OF 133 PATIENTS
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Objective: In this study, we aimed to evaluate our retrospective surgical treatment results in the aortoiliofemoral occlusive disease.
Methods: Between March 2001 and December 2005, 133 elective patients were operated in our clinic owing to aortoiliofemoral occlusive disease. There were 128 men and 5 women. The mean age of the patients were 60.9 years (range.36 to 85 years). All patients were evaluated with history and physical examination of the patients, Doppler ultrasound examination of the carotis and lower extremity arteries, coronary angiography, and aortoiliac and lower extremity arteriography.
Results: The comorbid diseases and risk factors were smoking (73%), coronary artery disease (59.3%), hypertension (25.5%), hyperlipidemia (12.7%), diabetes mellitus (11.2%), and chronic obstructive pulmonary disease

(10.5%). A total of 35 patients (26.3%) underwent coronary artery bypass grafting (*n* = 27;20.3%) or percutaneous transluminal coronary angioplasty (*n* = 8;6%) before being performed surgical treatment of the aortoiliofemoral occlusive disease. Sixty-teen (51.9%) patients underwent to aortobifemoral bypass graft, 34 patients (24.5%) to aortofemoral bypass graft, 17 patients (12.7%) to iliofemoral bypass graft, 9 patients (6.6%) to extraanatomic bypass graft, 2 patients (1.5%) to aortoiliac bypass graft and 2 patients (1.5%) to aortobiiliac bypass graft. Nineteen (14.2%) patients were also performed simultaneous femoropopliteal bypassgraft. Mean follow-up was 12.7 monts (range, 1 to 56 monts). In follow-up four patients developed graft thrombosis. One patient developed graft infection. Two patients died due to multiorgan failure postoperatively. Unless contraincicated after operation, all patients were given acetylsalycilic acid. The overall mortality rate was 1.5%. Overall patency and limb salvage rates were 97%.
Conclusion: Surgical reconstruction in the aortoiliofemoral occlusive disease is a safe method with good middle-term results in patency and limb salvage rates and has low risk in the good selected patients.

V11 - 20
MEASURING INTRASAC PRESSURE AFTER ENDOVASCULAR ABDOMINAL ANEURYSM REPAIR FOR TELEMETRY SENSOR
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Objective: Evaluation of the endotension intrasac after the endovascular abdominal aneurysm repair, now the physiopathology, research the possibility of prevention of the complications and research the ideal characteristics of the new devices in the endovascular treatment of the abdominal aneurysm.
Methods: The study have two parts. The first is a clinical study with the evaluation of the rutinary studies (echodoppler, TAC and RNM in few cases) for the follow-up of the patients with the endovascular abdominal aneurysm repair. Ninety patients is possible have included in the study. The images was treated whit planimetric and morphometric study with the cuantification of the aneurysm wall an thrombus intrasac The second part is a experimental study in the pig and previous study in vitro, with the purpose of evaluation of the monitoring of the intrasac pressure in the abdominal aortic aneurysm for telemetry before and after the endovascular treatment of the aneurysm sac. The study is performed in pig after of the creation artificial aneurysm in the abdominal aorta with the implantation a sensor pressure for telemetry in the sac. After a moth, all the animals are reopered and implantation a wall graft device, a half of the animal with a hole in the wall for performed a Type II endoleak. Every month all animal was examined and measured and registration the values systemic and abdominal aneurysm intrasac of the systolic pressure in different conditions of the normopressure, hypotension and hypertension provoqued with pharmacological induction with ephedrine and solinitrine drugs. A study statistic is performed for the analysis of the cuantitative data.
Results: The study demostrates the efficacy of the sensor system for pressure monitoring. The monitoring device is capable to indentificate changes in situations of endoleaks type II and differents situation of sistemic hipopression and normopression.
Conclusion: Systemic pressure is transmitted to the aneurysm sac through an attachment site failure, despite no endoleak resultin in endotension.

V11 - 21
SURGICAL TREATMENT OF THE RENOVASCULAR HYPERTENSION
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Goal: Estimation of the direct results of surgical reconstruction of renal arteries in renovascular hypertension.
Methods: From 1995 to 2004 at the Department of the Surgical treatment of arterial pathology there were investigated the direct results of 148 surgeries on renal arteries. Clinical investigation, 24-h blood pressure monitoring, ultrasound Doppler, renal arteries scintigraphy, and renal angiography were used.
Results: Most of the patients with atherosclerotic lesions - 96 (65%) underwent transaortic atherectomy with superior/inferior diaphragmal splanchganglionectomy. In 37 patients (25%) with fibro-muscular displasia the renal artery resection and angioplasty accompanied by superior/inferior diaphragmal splanchganglionectomy were performed. The rest 10 patients (7%) underwent other types of bypass surgery and 5 patients (3%) had nephrectomy. Positive clinical effect of the surgery was revealed in 140 patients (94%). In 7 patients (5%) the blood pressure remained on the initial level although with diminished signs of renal insufficiency. One patient (0.7%) died of acute left ventricular failure.
Conclusion: Surgical reconstruction of renal arteries gives positive clinical effect and decreases renal insufficiency in patients with renovascular hypertension.

V11 - 22
COGNITIVE BRAIN FUNCTION BEFORE AND AFTER CAROTID SURGERY
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Objectives: Evaluation of the effectiveness of surgical treatment of internal carotid artery stenosis and kinking patients.
Methods: We measured cognitive brain function in 49 patients at our hospital. Thirty one consecutive patients with moderate to high-grade stenosis of the internal carotid artery (ICA) (mean age±S.D., 61±6 years), 18 patients with kinking of the internal carotid artery (54±10 years). Carotid disorders was verified by ultrasound duplex scanning and more rare digital subtraction angiography. Brain function was measured objectively by P300 evoked potentials before surgery and before hospital discharge (5 days postoperatively).
Results: All patients showed prolonged P300 latencies and reduced P300 amplitudes before operations. After operations performed on kinking patients, 15 of them revealed the improvement of cognitive functions, 1 - not any improvement and 2 patients showed downgrade of cognitive functions of brain. In group of patients with carotid artery stenosis, 24 of them showed the improvement of cognitive functions after operations, 3 patients - declension and 4 - no dynamics.
Conclusion: The cognitive P300 potentials is an early and sensitive instrument of evaluation of the effectiveness of carotid arteries reconstructive operations.

V11 - 23
THE COMPUTERIZED MANAGEMENT OF THE CLINICAL PATHWAY IN VASCULAR SURGERY
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Objective: The authors present the computerized procedure used in the Department of Vascular Surgery at the AS of Florence. They also present some practical examples of computerized clinical data how they can be processed, and the information that can be obtained easily and quickly.
Methods: The introduction of computers into medical field has led to a revolution in data and patient management criteria. In a simpler bygone era, patient charts were nothing more than a few sheets of paper clipped together and slipped inside a light-weight cardboard file. Today, the average medical chart contains at leas 70 pages of odd-sized forms, laboratory results, medication records, and hand-written notes. After a clinical and computerized experience lasted for at last 10 years the authors come to the conclusion to develop a new computerized instrument (Argos Dedalus sistemi) built with the aim to look after the patient from the first contact in the ambulatory, during all the pre operative period (preoperative evaluation), informed consent, hospitalization, surgical intervention, post operative care (drugs and nurse ..), follow up. All these phase are harmonically linked in our systems in a continuum of information generated in all the phase of the clinical pathway working on this workflow technologies. True automated management of patient records is now available through patient data management systems.
Results: A growing recognition of the costs and risks of data replication within paper-based charting systems is driving the healthcare industry toward Electronic Patient Record systems. Better quality patient care data, provided by computerized records, is likely to be necessary but not sufficient to improving the efficiency and effectiveness of the healthcare system. Intelligent application of this information will be essential. The equipment actually in use in our department is organized in 14 terminal, 1 server with automatic back up procedure, web connectivity for remote patient care, wireless availability for "on bed data entry". Furthermore, to be truly effective, electronic patient record systems must address ancillary functions such as dictation and transcription.

Conclusion: From our data evaluation easily highlight the improvement that this system has lead to the clinical management of the patient with an improvement in patient safety, care quality, and communication among all the actors of the clinical scenario but particularly with the patient which every time feel in the centre of a well organized procedure finding the front line staff with the tools to settle the problems and to answer questions.

V11 - 24

SURGICAL MANAGEMENT OF INFECTED ISCHEMIC DIABETIC FOOT

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Objective: Analysis of all the early and late results of Infected Ischaemic Diabetic Foot (IIDF) limb salvage procedures in order to get preoperative evaluation on revascularisation according to clinical status of diabetic foot (by Wagner classification) and angiographic findings on involved limbs.
Methods: The clinical 5-year material (74 IIDF) includes all the early and late results of simultaneous and sequential combination of limb salvage procedures (revascularisation and mini-amputation).
Results: The IIDF type Wagner 2-4 have been treated with a combination of revascularisation and mini-amputation procedures in several operative acts, while the IIDF type Wagner 1 have also been treated with combined surgery but in only one operative time. Staging combined limb salvage procedures have been mostly sequential (53 treated IIDF) with previous mini-amputation surgery followed by delayed revascularisation. Early results (within 6 months) of this combined procedures can be indicated as good (2/3 of IIDF have been salvaged) while the late results can be indicated as satisfactory (only 1/3 of IIDF have been salvaged within 2 years follow-up).
Conclusion: Sequential limb salvage surgery (revascularisation + mini-amputation) is the treatment of choice for patients with IIDF. Only for IIDF type Wagner 2, as alternative, is allowed to use combined simultaneous limb salvage surgery. Limb salvage success of IIDF is in a direct proportion with the infect erradication and capability of arterial “run-off” on involved limb.

V11 - 25

FACE AND NECK ANGIODYSPLASIAS - MODERN PRINCIPLES OF TREATMENT WITH APPLICATION OF ELEMENTS OF PLASTIC SURGERY

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Objective: Patients with vascular malformations in the area of face and neck are difficult for treatment on account of anatomic peculiarities of this area. In some cases standard resections are absolutely impossible thus inducing to search new ways of wound surface closure with application of reconstructive surgery principles.
Methods: Results of treatment of 18 patients (mean age - 26.6±10.8 years) with face and neck angiodysplasias (7 cases - venous, 11 - arteriovenous) were estimated. Diffuse affection of two or more anatomic areas was revealed in 11 patients. Extension of affection was determined by the data of clinical investigations and DS of soft tissues. Final diagnosis was performed with application of the methods of CT and MR angiography.
Results: Eleven procedures of preoperative superselective embolization with application of hydrogel emboli were performed in 9 patients as an obligatory stage of treatment in arteriovenous form of affection. Radical resection of angiomatous tissues was performed in 8 cases, palliative - in 3. In 2 cases resections were as a stage. In 2 other cases of venous form, sclerotherapy of residual venous cavernae was performed with alcohol 70%. In 5 cases autodermoplasty with a free perforated skin flap was performed in 7-10 days. This method was usually used for closure of wound surfaces after resection of angiomatous tissues of parotid and scalp areas. In 3 cases wound surface was closed with a neck cutaneous-adipose flap.
Conclusion: The primary aim of the first stage of surgery in patients with arteriovenous malformations is maximal application of abilities of preoperative transcatheter embolization both as basic method of treatment and as stage of preoperative preparation. The main aim of surgery is radical resection, as palliative operations result in recurrency of clinical symptoms even within the first year of follow-up. In arteriovenous and venous affections of neck and face areas, surgical blood losses depend more on the extension, depth and localization of affection, but not on its type. Taking into account the importance of cosmetic result, plastic methods of wound closure should be used more widely. The same methods allow to perform surgery for angiodysplasias more radically. Autodermoplasty with a split skin flap is to be performed in a long-term time. Wound surfaces are closed both with mobilized flaps (e.g. neck flap) and flaps on microvascular anastomoses. Surgical interventions are to be performed with application of the apparatus of blood return system and armed intubation tubes.

V11 - 26

SURGICAL AND ENDOVASCULAR MANAGEMENT OF ARTERIOVENOUS MALFORMATION

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Objective: Management of Arteriovenous malformation (AVM) remains a major challenge to vascular surgeons. A multidisciplinary approach was introduced in our hospital to manage these cases since October 2003. This is a report of our experience in the diagnosis and treatment of such cases.
Methods: A prospective study was done on all patients with symptomatic AVM admitted to our unit since the above date until now. All patients had preoperative duplex scan, MRI and conventional angiography. A multidisciplinary team assesses and treats these cases according to its type.
Results: Eighteen cases were included in this study with mean follow up of 10 months. Ten cases were predominately venous and treated with surgical excision. Six cases were high flow fistula and were treated with preoperative embolization followed by surgical excision. Two cases were treated with super-selective embolization alone. The complication rate was low 21% and all were minor.
Conclusion: Management of AVM by a multidisciplinary approach that integrates surgical and endovascular therapy appears to improve the results with limited morbidity and no recurrence during early follow up.

V11 - 27

AN UNUSUAL CASE OF CLAUDICATION: THE ADVENTITIAL CYSTIC DISEASE OF POPLITEAL ARTERY

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Objective: Cystic adventitial disease (CAD) is an uncommon cause of peripheral arterial occlusive disease (PAOD). The presense of cystic formation between adventitial and medial layers of the artery causes a compression ab estrinseco, which leads to a dynamic exercise-dependent flow inhibition. In the last 5 years more than 2000 patients suffering of PAOD were treated at our Department, and in two cases an popliteal CAD was identified.
Methods: Two young males with no risk factor for vascular disease were presenting a similar symptomatology: unilateral intermittent claudication in calf region with free symptom distance of approximately 200 m, worsened in the course of the last few mounths. On examination we noticed the disappearance of foot pulses during the knee joint flexion. The Ultrasound and Color Doppler Sonography study showed a typical cystic hypoecogic lesion in the popliteal artery wall with severe subsequent artery stenosis. The Computed tomography scan confirmed the present of multilocular adventitial popliteal cysts. On the basis of these results we planned a surgical resection of the cyst for both cases.
Results: The popliteal artery was exposed through a posterior approach in both cases. The pathognomonic features of CAD were clear: a circumscribed enlargment of arterial caliber, from wich, on longitudinal incision, escaped an orange, pressurized, and gelatinous mass. No communication of cyst with the joint was noted. We resected the adventitial layer, preserving the arterial continuity, without the necessity of graft bypass. The postoperative course was uneventful for both patients. The intermittent claudication promptly resolved and at follow-up the duplex Doppler Sonography showed a good patency of popliteal artery and no signs of cyst recurrence, respectively at 4 and 2 postoperative year.
Conclusion: Cystic adventitial disease is a rare cause of vascular disease, and in our experience is present in about 1/1000 patients with PAOD. The clinical suspicion is especially for young people with claudication and without risk factors for atherosclerosis. In our opinion the surgical treatment is indicate in all cases presenting a severe claudication, with an hemodinamic stenosis at duplex Doppler (signs of increased systolic and diastolic velocities, and distal flow reduction). The radiological approach -percutaneous aspiration under US guidance- has the disadvantage that the cyst fluid can be re-excreted by the cyst lining in about 30% of patients; therefore we think that the treatment of choise remains the surgical resection.

V11 - 28

AORTOILIOFEMORAL SEQUENTIAL BYPASS IN THE TREATMENT OF VASCULOGENIC IMPOTENCE WITH AORTOILIAC OCCLUSIVE DISEASES

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Objective: Leriche first pointed out the association between aortic occlusion and impotence in 1923. Leriche's Syndrome consists of terminal aortic occlusion, impotence and weakness of the thigh muscle. Although aortoiliac surgery carries a high risk of sexual dysfunction postoperatively, approximately 1/4 of patients who have vascular impotence, regain normal sexual function after aortoiliac revascularization. Increased pelvic circulation provides sexual improvement. Penile blood pressure can be measured by using penile Doppler USG preoperatively.
Methods: Two patients who suffered from vasculogenic impotence with thigh and calf pain in Rutherford - Fontain II Classification were referred to our clinic. Preoperative DSA and Doppler USG revealed common iliac stenosis at the external - internal iliac arterial junction in the both side in one and only in left side in the other. Patients were hypertensive, nondiabetic, hypercholesterolemic and smoker. BMI is normal in one the other was obese. PSA was high in one. Pressures of the cavernosal arteries and dorsal penile artery were measured by penile Doppler USG before and after papaverine injection. Testosterone, PSA level in blood, penile-brachial index and penile - iliac index were checked before and after operation. Dacron Y graft implantation with right aortoiliac, left aortoiliofemoral sequential bypass was performed in one patient. Only left aortoiliofemoral sequential bypass with Dacron graft was done in the other.
Results: Significant penile blood flow increasing in the postoperative measurements was detected and both patient regained normal sexual function.
Conclusion: It is important to pay attention in order to provide at least in one side increased blood flow of internal iliac artery, especially in the left side for the adequate pelvic blood flow which can also be enhanced with femoral artery anastomosis by aortoiliofemoral sequential bypass. The aortoiliofemoral sequential bypass procedures can reverse vasculogenic impotence in aortoiliac occlusive diseases.

V11 - 29

SURGICAL TREATMENT OF ATHEROSCLEROTIC LESIONS OF AORTA AND ILIAC ARTERIES IN PATIENTS AGE 70 YEARS OR OLDER

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Objective: Severe atherosclerosis is a major contributor for death in septuagenarians and octogenarians and a cause of multiple vascular-related ailments, including claudication and limb loss. The general treatment principles of these patients still remain unclear. The most surgeons prefer to treat these patients without surgical methods, and in case of a severe limb ischemia to perform a palliative above-knee amputation.
Methods: From 1998 to 2000 24 aortobifemoral shunting and 52 remote endarterectomies with the Ring Strip Cutter device were performed in 76 patients. The median age was 78.6 (71-94) years. The first control group included 30 patients above-knee amputations were performed. The second control group included 78 nonseptuagenarians. Indications for operation were a severe limb ischemia. They underwent aortoileofemoral remote endarterectomy with the Ring Strip Cutter device. Enrollment of patients was equally over the years. All patients suffered from long segmental occlusion or multiple stenosis of aortoileofemoral segment. Pokrovskii classification was used to asses the stage of ischemia. Follow-up consists of clinical evaluation, Doppler, duplex scanning, and angiography on indication. Patency was assessed by clinical examination and duplex monitoring. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.
Results: Early postoperative mortality in main group was 5.1% and was higher than in second control group -2.3% ($P<0.01$). I comparison with those groups early postoperative mortality in the first control group was 23.3%($P<0.01$). Because of insufficient tissual blood flow only 30% of stumps were healing by first intention. In 46% cases reamputations were performed, in isolated instances coxal exarticulation were required. Life table analysis in main group shows a five year patient survival rate of 56.6% and it was significantly higher than at first group. This parameter was highest in the second control group - 71.2% ($P<0.01$). The five year primary patency rates after remote endarterectomy of iliac arteries were 93.3% and only 80.7% after aortofemoral shunting. Five-year limb salvage rates after remote endarterectomy were 100%. Five-year limb salvage rates after aortobifemoral shunting were 96.6%. Similar results were received in the second control group.
Conclusion: We recommend performing revascularisation in octogenarians and septuagenarians. Above-knee amputations are not always provide a good healing of a stump and are accompanied by high mortality in the early and late postoperative periods. After reconstructive interventions a good primary patency and survival rates were noted and that explains high quality of life of operated patients.

09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

12TH VASCULAR SCIENTIFIC SESSION
PERIPHERAL VASCULAR DISEASE II

V12 - 1

OPEN REPAIR VERSUS ENDOVASCULAR TREATMENT FOR ASYMPTOMATIC POPLITEAL ARTERY ANEURYSM: RESULTS OF A PROSPECTIVE RANDOMIZED STUDY

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Objective: The aim of this prospective randomized study was to evaluate the relative risks and advantages of using the Hemobahn graft for popliteal artery aneurysm (PAA) treatment compared to open repair (OR). Primary end-point were: patency rate, secondary end-points were hospital stay, length of surgical procedure.
Methods: The study was a prospective randomized clinical trial carried out at a single centre from January 1999 to February 2004. Inclusion criteria were: 1. aneurismal lesion in the popliteal artery with a diameter = 2 cm at the angio-CT scan 2. proximal and distal neck of the aneurysm with a length >1 cm to offer a secure site of fixation of the stent-graft. Exclusion criteria were: 1. age <50 years, 2. poor distal run-off, 3. contraindication to anti-platelet, anti-coagulant or thrombolytic therapy, 4. symptoms of nerve and vein compression. The enrolled patients were thereafter prospectively randomized in a 1-to-1 ratio between OR or endovascular therapy (ET). The follow-up protocol consisted on duplex ultrasound scan, ankle-brachial index (ABI) measured even during force leg flexion at 1, 3 and every 6 months. Patients of Group B underwent an angio-CT scan and plain radiogram of the knee with leg flexion (>120°) at 6, 12 months and than early.
Results: Between January 1999 and February 2004 a total of 32 PAAs (16 OR Group A - 16 ET Group B) were performed. Bypass and exclusion of the PAA was the preferred method of OR; no perioperative graft failure was observed. Twentytwo stent-grafts were placed in 16 PAAs. Endograft thrombosis occurred in 1 (6.25%) case in the postoperative period. The mean follow-up period was of 46.3 months (range 12-74) for Group A and of 46.1 months (range12-67) for Group B. The Kaplan-Meier analysis showed a primary patency rate of 100% at 12 months for OR and of 86.7% at 12 months with a secondary patency rate of 100% at 12 and 36 months for ET. No statistical differences were observed at the log-rank test. The mean operation time (155.3min. OR -75.4min. ET) and hospital stay (7.7 days OR - 4.3 days ET) were statistically longer for OR respect to ET ($P<0.01$).
Conclusion: We can conclude, with the power limitation of the study, that PAA treatment can be safely performed using either OR or ET. The choice of the ET has several advantages as quicker recovery and shorter hospital stay.

V12 - 2

ENDOVASCULAR REPAIR OF ISOLATED COMMON ILIAC ANEURYSMS WITH SHORT PROXIMAL NECK USING ENDOFIT STENT GRAFT

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Objective: To evaluate the feasibility and efficacy of a specific endograft for treatment of isolated common iliac aneurysms with short proximal landing zone.
Methods: From 2003 to 2005, 7 high-risk (ASA III/IV) patients with isolated common iliac artery aneurysms with less than 10 mm proximal landing zone were treated with Endofit (Le Maitre Vascular, Germany) self expandable endograft with bare proximal stent. The proximal bare stent was deployed into the terminal aorta and the covered segment of the graft excluded the sack of the aneurismal artery. The contralateral iliac axis was left patent. All patients gave informed consent and were followed with contrast-enhanced computed tomography at 1, 6, 12, and 24 months.
Results: Endofit stent-grafts were implanted successfully in all patients. Perioperative mortality was zero. In 5 cases the ipsilateral internal iliac artery was intentionally covered because the aneurysm was extended to its orifice. During the 20 months median follow up no endoleak occurred. Thrombosis of the graft occurred in 1 case during the postoperative period due to severe external iliac artery calcification and kinking which was initially underestimated. The deficit was treated successfully with fem-fem cross over by-pass. During follow-up all patients are alive. None of the aneurysms has ruptured or been converted to an open procedure. Graft migration, serious infection, distal embolization, or any other serious complication has not been observed.
Conclusion: In high surgical risk patients, repair of isolated common iliac aneurysms with short proximal landing zone, using Endofit tapered stent graft with bare proximal stent is feasible and efficacious. Midterm results appear quite satisfactory in this small cohort. More cases and longer follow-up are necessary to draw safer conclusions.

V12 - 3

PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY WITH DIRECT STENT PLACEMENT IN LOWER EXTREMITY ISCHEMIA

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Objective: The purpose of this study was to estimate effective of the percutaneous transluminal angioplasty with direct stent placement in lower extremity ischemia.
Methods: From July 2004 to September 2005, 49 limbs in 45 patients with critical limb ischemia (pain at rest in 15 [30.6%] and ulcer/gangrene in 36 [69.4%]) were treated with endovascular intervention with direct stent placement. The following variables were analyzed was clinical signs (pain at rest reduction and ischemic ulcer improvement). Patency was evaluated using ultrasound.
Results: A total of 49 limbs were treated in 45 consecutive patients with critical limb ischemia, 46.9% involving iliac segment, 40.8% femoropopliteal, 8.1% tibial arteries and 4.1% reversed saphenous vein bypass. Mean follow-up was 6.4 months (3 to 14 months). Technical success was achieved in 95.91%. Clinical success was obtained in 91.11% (pain at rest only) and 82.35% (ischemic ulcer). There was 0% mortality (intraoperative) and 1% incidence mortality for myocardial ischemia in 3 months postoperative. In each subgroup, the primary patency, continued clinical improvement and limb salvage rates at six months were 95%, 95% and 100% in iliac group, 84.2%, 89.4% and 94.7% in femoropopliteal group and 66.6%, 66.6% and 100% in tibial group.
Conclusion: The percutaneous transluminal angioplasty with direct stent placement can be the primary choice for the treatment of critical limb ischemia due to iliac and infrainguinal arterial occlusive disease.

V12 - 4

IS THERE ANY INDICATION FOR ABOVE KNEE SFA REPAIR?

L. Castellani
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Objective: Femoro-popliteal occlusive diseases represents the most frequent localization (70%) of atherosclerosis in the lower extremities (PAD) and the superficial femoral artery (SFA) represents the most targeted region (50%of the patients). In fact, the deep femoral artery (DFA) is the most important collateral vessel for bypassing the obstructed SFA and is essential for maintaining limb viability. It is important to distinguish patients with intermittent claudication (IC) and with Critical limb ischaemia (CLI). It is widely agreed that adverse limb outcomes such as gangrene and amputation are relatively rare among patients with IC.
Methods: For these patients, all the trials and meta-analysis have shown that, although angioplasty achieves better results at 6 months, by 24 months there iis no significant difference in walking distance and quality of life in patients treated with exercise therapy. Superficial femoral angioplasty is a waste of time and is not recommended to treat claudication. For patients with CLI or incapacitating IC, it is most important to understand risk and benefit of each therapy. The TransAtlantic Inter-Society Consensus (TASC) document classified SFA lesions according morphology and complexity. In patients with TASC A,B,C lesions, without patent DFA, endovascular therapy is the treatment of choice (angioplasty, endografts, subintimal angioplasty, remote endarterectomy). In patients with TASC D lesions, the majority of patients will be considered for endovascular procedure as the first line of treatment. Only In case of SFA extensive calcifications, an above knee bypass is recommended (a saphenous vein bypass (SV) or a PTFE bypass to spare SV for later use. In patients with TASC D lesions, (below knee lesions), surgical bypass is the gold standard.
Conclusion: Conservative management is indicated for mild,moderate IC, and there is insufficient evidence to show a benefit of stenting. For patients with Incapacitating IC or CLI, Endovascular procedures are indicated and bypass Surgery should be reserved for patients in whom endovascular procedures fail.

Distal bypass graft remains the gold standard for patients with complete popliteal occlusion. In the last decade, development of medical therapy has expanded enormously and SFA above knee repair will change in the near future.

V12 - 5

POPLITEAL ARTERY ANEURYSMS. CLINICAL PRESENTATION AND SURGICAL REVASCULARIZATION

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Objective: Popliteal Artery Aneurysms (PAA) are burdened with thrombo-embolic complications followed by amputation in 20% - 38% of the patients. Optimal results are function of early diagnosis and elective surgical treatment.
Methods: Between January 1980 and December 2005, 26 patients (24 men and 2 women), with mean age 65.1 yrs (range: 38 - 82 yrs) (DS±11.7) were admitted in our vascular surgery unit because a PAA; 23 pts out of them were surgically revascularized. At the admission, 11 pts presented acute limb Ischemia, 2 pts complained of rest pain, 2 pts complained of Intermittent Claudication, 6 pts presented signs of compression, and 5 pts were asymptomatics. Eighteen pts had a true aneurysm, 3 pts had an infectious pseudoaneurysm, and 4 pts had a postraumatic pseudoaneurysm. The PAA mean diameter was 5 cm (range: 3 - 10 cm). Fifteen pts were treated by a femoro-popliteal graft, 4 pts had a popliteal graft, 2 pts underwent termino-terminal anastomosis, in 1 pt it was performed a BK femoro-popliteal bypass and in 1 pt a femoro-tibioperoneal trunk bypass was carried out. In 3 pts it wasn't carried out any revascularization because the massive soft tissue infection in 2 pts, and the irreversible leg ischemia in 1 pt.
Results: In postoperative period three pts died with a mortality rate of 13%. Three pts that weren't revascularized underwent amputation. Seven out 23 revascularized pts had postoperative graft thrombosis with 70% postoperative patency rate. Six pts of them underwent thrombectomy and 1 pt was amputated because the irreversible Ischemia. Four out 6 pts treated by thrombectomy were unsuccessful and underwent amputation. We obtained a postoperative salvage rate of 79%. Considering 23 revascularized pts, 5 out 10 (50%) pts presenting with acute limb Ischemia underwent amputation while all the pts without acute ischemia saved their limb (P<0.005). Considering 26 admitted pts, 6 out 11 (54.5%) pts with acute limb Ischemia underwent amputation while 2 out 15 (13%) were amputated in the control group (P<0.005). In the FU we had a femoro-popliteal graft thrombosis treated succefully by local thrombolytic therapy.
Conclusion: Better postoperative results in terms of patency and limb salvage rate are obtained in pts operated in election. Elective surgical therapy must be considered the first line treatment.

V12 - 6

DUPLEX SURVEILLANCE FOR INFRA-POPLITEAL VEIN GRAFT BYPASS

McKeown S.A., Devine C., Welch M.
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Objective: To determine the outcomes of infra-popliteal vein graft bypass and the influence of duplex surveillance.
Methods: A retrospective analysis of operations performed by one consultant in a 5-year period. Patient demographics, risk factors for occlusive arterial disease, operative details, duplex findings and subsequent interventions were collated through case-note analysis.
Results: Eighty-five infra-popliteal bypass grafts were performed in 77 patients, 61 in males (71.8%) and 24 in females (28.2%), mean age 69.4 years (range = 34 - 90). Seventy-eight operations were for critical ischaemia (91.8%), 3 for acute ischaemia (3.5%) and 4 for disabling claudication (4.7%). The 4-week, 1-year and 2-year primary patency rates were 80.4%, 59.4% and 48.6%, respectively. The 4-week, 1-year and 2-year primary-assisted patency rates were 80.5%, 62.9% and 53.2%, respectively. The 4-week, 1-year and 2-year secondary patency rates were 84.2%, 63.8% and 51.5%, respectively. The 4-week, 1-year and 2-year amputation rates were 8.9%, 20.9% and 31.4% respectively. Twenty-five significant primary stenoses were detected in 21 patients, with re-intervention after mean duration of 237 days (range = 59-746), 16 (76.2%) being completely asymptomatic. Ten significant re-stenoses (5 asymptomatic) were detected in 10 grafts requiring secondary re-intervention after mean duration from surgery 310 days, range 98-924. Five significant tertiary re-stenoses were detected in 4 grafts, all asymptomatic.
Conclusion: Femoro-distal bypass is a reliable treatment for limb salvage. The introduction of a duplex surveillance programme has prolonged the longevity of many of these grafts, though this involves a large number of interventions in asymptomatic patients.

V12 - 7

POSSUM EQUATIONS ACCURATELY PREDICT 30-DAY INFRAINGUINAL BYPASS POSTOPERATIVE MORTALITY

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Vascular Laboratory, Alderson House, Hull Royal Infirmary, Hull, England

Objective: P-POSSUM and V-POSSUM scores have previously overpredicted mortality in vascular patients. Procedure-specific POSSUM equations have been proposed in order to overcome this problem. This study aims to assess whether P-POSSUM & V-POSSUM overpredict mortality in patients undergoing femoropopliteal bypass.
Methods: 352 femoropopliteal bypasses (170 above knee) were performed in 280 patients (median age 70 years, 188 men) between June 1991 & April 2004. Indications for surgery were acute ischaemia, claudication and critical ischaemia in 30, 140 and 182 cases. Predicted mortality was calculated using P-POSSUM, V-POSSUM & V-POSSUM (physiology) equations. Predicted 30 day mortality was then compared with observed 30 day mortality using a chi-squared analysis.
Results: Observed 30 day mortality/patient episode was 4.2% (15 patients). For the group as a whole, P-POSSUM, V-POSSUM & V POSSUM (physiology) all significantly over predict mortality for the group as a whole (P<0.05). Observed 30 day mortality varied considerably according to indication for bypass. Acute ischaemia, critical ischaemia & claudication were associated with observed 30 day mortalities of 13%, 4.9%, and 1.4%, respectively. All 3 POSSUM models provided good fit with observed mortality when analysed according to indication for bypass (p>0.05).
Conclusion: Reinterpretation of the application of POSSUM equations (for example dividing patients according to indication for procedure) may eliminate the necessity for the derivation of procedure specific equations. POSSUM equations could then become more powerful and accurate tools for operative risk assessment.

V12 - 8

COMPOSITE BY-PASS WITH DISTAL ARTEROVENOUS FISTULA FOR LIMB SALVAGE IN PATIENT WITH CRITICAL LIMB ISCHEMIA 7 YEARS EXPERIENCE WITH 2 DIFFERENT TECHNIQUES FOR DISTAL ANASTOMOSIS

Galeazzi E., Ganassin L., Turini L., Corato M., Doro S., Toffon A., Masotti D.
Vascular Surgery Unit -Treviso Regional Hospital, Treviso, Italy

Objective: A distal artero-venous fistula in peripheral reconstructions in patients with critical limb ischemia and poor run off is usually performed to reduced peripheral resistence.
Methods: In our vascular surgery unit from 1998 until 2005 510 patients received a femoro distal by-pass for limb salvage. 170 reconstructions in 165 patients (109 m,56 f, mean age 73.1 years .32% fontaine iii, 64% fontaine iv, 4% acute ischemia, 45% diabetics)were performed using a composite by-pass. An human umbelical vein was anastomized at the end with a pantaloon vein graft or an "elephant trunk" graft made of autologous vein or criopreserved omologous vein.
Results: primary patency at the discharge from the hospital was 93% cumulative patency and limb salvage at 5 years were 56% and 58;5% with an incidence of redo surgery of 27%, mortality 0.9%.
Conclusion: In patient with critical limb ischemia,no vein available for a distal by-pass and poor run off a composite graft with a distal artero-venous fistula can offer a good chance for limb salvage preventing limb amputation.

V12 - 9

SPINAL CORD STIMULATION (SCS) FOR UNTREATABLE CRITICAL LIMB ISCHEMIA (UCLI): EXPERIENCE AND LATE RESULT OF A SINGLE CENTRE

Pedrini L., Magnoni F., Ballestrazzi S.M., Sensi L., Pisano E.
Operative Unit of Vascular Surgery - Maggiore Hospital, Bologna, Italy

Objective: The treatment of UCLI with SCS has been suggested by many years, but only recently, a Cochrane review showed an evidence for this

treatment. The purpose of this study is to evaluate late results of a single centre in patients submitted to SCS for UCLI.

Methods: Between 1989 and June 2003, 99 consecutive patients (72 males, mean age 72 years (5389), affected with critical or sub-critical ischemia of the lower limbs were submitted to SCS following a prospective open study. More than 94% had CLI (31.6% rest pain and 63.6% ischemic ulcers or gangrene). Indications to SCS were absolute (impossible revascularization) in 62, and relative (foreseen poor results) in 36. The indication to treatment was based on clinical and angiographic evaluation without considering TCPO2 values. All the patients were tested for about 15 days before the implantation of the definitive device.

Results: In 1 case the electrode could not inserted because of spine pathology; 15 (15.3%) were not responders at the stimulation trial, while 82 responders (83.7%) had the implantation of the internal device. Twelve of the non responders were amputated and/or died in a short time, 1 (ASA 4 with poor run-off) was successfully revascularized and 3 (in bad conditions) were lost at follow-up. At 1 year follow-up, 60.9% of the 82 patients with SCS implantation were alive with limb saved, 4 (4.9%) were dead with limb saved, 24.4 were amputated and 1(1.2%) died after amputation; only 8.5% had a follow-up <1 year. At 3 years, using the life-table analysis, we observed 61.2 limbsalvage and 56.1 survivors. Following an "intention to treat" criteria, in our sample we recorded 77.4% limb salvage in patients with rest pain and 65.5% in p. with ulcers or gangrene; all the 6 p. with very severe claudication improvemed. Results in diabetics were worse. Prevalent complications observed were: infections, lead displacement or rupture. In 8 p. the device must be removed in the follow-up for complications, 3 underwent amputation while symptom worsened in the others.

Conclusion: On the basis of our data SCS can be considered for the treatment of CLI when surgery is not possible or at high risk of poor results even in p. with ischemic ulcers or with gangrene of 1 or more fingers. An early treatment of patients with CLI, at the rest-pain stage, could offer a very good limb-salvage and pain-reduction rate even in patient unfit for arterial reconstruction.

11.00-13.00
MAY 14, 2006 4TH CONGRESS DAY

13TH CARDIAC SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

C13 - 1

POST-TRAUMATIC FALSE ANEURYSMS OF THE THORACIC DESCENDING AORTA. ENDOVASCULAR TREATMENT AND MID-TERM RESULTS OF A MULTI-CENTRE EXPERIENCE

J-Ph. Verhoye, F. Thony, H. Rousseau, P. Leprince, Ph. Douek, L. Boyer, J-F. Heautot
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Objective: Endovascular stent-graft repair is a promising technique for treating traumatic injuries of the descending thoracic aorta. We report the results of a multi-center study of isthmus injuries treated more than 15 days after the trauma: 30 (63.8%) diagnosed at the time of the trauma, 17 (36.2%) discovered incidentally.
Methods: Between January 1996 and June 2004, endovascular repair of the descending thoracic aorta with commercially available stent-grafts was performed in 47 patients (mean age 43±19 years) at an average of 6±11 years after the injury. Because of comorbidities, 8 patients (17%) were judged not to be reasonable surgical candidates for conventional surgical approach. Follow-up was 100% complete and averaged 18±13 months.
Results: Stent-graft deployment was successful in all patients. No early death occurred. One late transient paraparesia occurred. Two patients had a primary endoleak, one type I and one type II spontaneously resolutive at 1 and 6 months, respectively. Two endotension are described after 36 months (currently monitored) and 30 months (surgical conversion). Actuarial survival estimates at 1 and 3 years were 97.7±2.3% and 87.9±9.5%, respectively. Actuarial freedom from reintervention on the descending thoracic aorta was 100% and 90.9±8.7% at 1 and 3 years, respectively. Actuarial freedom from treatment failure (a conservative, all-encompassing performance indicator including endoleak, device mechanical fault, reintervention, late aortic-related death, or sudden, unexplained late death) at 1 and 3 years was 97.7 2.3% and 74.6±11.9%, respectively. The pseudo-aneurysm mean diameter was 44±18 mm before treatment and decreased significantly (P<0.001) to 40±18 mm after.
Conclusion: Chronic post-traumatic pseudo-aneurysms are generally localized lesions on a short segment of the aorta with non-degenerative neck. These particular anatomic conditions probably explain our encouraging mid-term results. A long-term follow-up is required to look for stent-graft failure or late endoleaks related to aortic degenerative evolution.

C13 - 2

LEFT VENTRICLE (LV) GEOMETRY RECONSTRUCTION LEADS TO THE RESTORATION OF SPIRAL FLOW

Alshibaya D.M., Gorodkov Y.A., Dorofeev V.A.

Objective: To study the changing of LV geometrical parameters and blood flow in the LV after surgical LV geometry reconstruction (GR) in patients with ischemic cardiomyopathy (ICMP).
Methods: Our overall experience consists of 287 cases of LVGR with synthetic patch in ICMP patients. In all but three cases LVGR was performed in combination with CABG, in 25% of cases mitral valve repair (MVR) was performed. LV geometry and blood flows were investigated by colour Echo-Doppler method.
Results: LVGR results in restoration of nearly normal geometrical parameteres of LV, in reduction of end-systolic and end diastolic volumes and in substantial growth of LVEF (+12%). Significant improvement of hemodynamic status was observed: increasing of cardiac index, decreasing of pulmonary artery pressure. As a result of reconstruction, the normal spiral mechanism of contraction and spiral streams in the LV are restored. LVGR reduces a degree of mitral insufficiency (MI) and a probability of ventricular arrhithmias.
Conclusion: The basic mechanism causing improvement in clinical condition and contractility of ICMP patients after LVGR is the restoration of spiral blood flow in the LV cavity, normalisation of geometrical parameters, elimination of MI and complete myocardial revascularisation. Hospital mortality was 6.8%. In the follow-up period positive effect of LVGR was observed in 80% of patients.

C13 - 3

REOPERATION IN PATIENTS WITH MECHANICAL PROSTHESIS: INCIDENCE AND MODES OF FAILURE

Shikhverdiev N., Marchenko S., Eliseev R.
Kuprijanov's Cardiovascular Surgery Clinic, St.Petersburg, Russian Federation

Objective: Our aim was to evaluate the incidence, modes of failure, technical issues and outcomes related to reoperations.
Methods: From 1995 to 2005, 1020 pts underwent to the valves replacement and were followed with serial 2D echo. Data was retrospectively collected in a database.
Results: A reoperation was required in 113 pts (11.1%). Symptoms were mainly related to cardiac failure and sepsis in presence of prosthesis endocarditis. Modes of failures and pathologic findings were as follows: paravalvular leak – 23 pts, progressive of primary disease or its recurrence – 25 pts, progressive valve trombosis – 9 pts, prosthesis endocarditis – 37 pts., residual insufficiency or technical mistakes – 19 pts. Overall mortality rate was 21.2%. 71 reoperations were performed through the right sided thoracotomy and 30 through median sternotomy: AV rereplacement, reconstruction or rereplacement of the mitral and tricuspid valves, closure of different fistulas in infective endocarditis and etc. Mean age was 42±7 year, male/female ratio 2/1, NYHA class 2.9±0.7. If it was necessary more than available area for manipulation the femoral artery was cannulated instead of the ascending aorta to provide adequate CPB. The additional transverse sternotomy was performed in 4 patients underwent to reoperations following previous cardiac procedures when it was difficult to carry out cardiolisis.
Conclusion: Reoperation in patients with mechanical valves is mainly related to technical problems. Right sided anterolateral thoracotomy is less traumatic approach in this category of patients, provides a good exposure of the ascending aorta and aortic root.

C13 - 4

ADVANCED EARLY MITRAL RECONSTRUCTIVE PROCEDURES IN ACTIVE INFECTIVE ENDOCARDITIS BASED ON FUNCTIONAL ANATOMY

Shikhverdiev N., Khubulava G., Marchenko S.
Kuprijanov's Cardiovascular Surgery Clinic, St.Petersburg, Russian Federation

Objective: The timing of mitral surgery has changed considerably to an early surgical concept preceding not only the signs of left ventricular dysfunction but severe destructive changes. The purpose of this study was to review the risk-benefit ratio of mitral valve repair in active IE patients with mild or moderate mitral regurgitation.
Methods: From September 2001 to December 2005, 61 patients were operated on for mitral regurgitation following IE. All patients were divided into 2 groups (1 – MV replacement (27 pts), 2 – MV valvuloplasty (34 pts)). Patients were in New York Heart Association class I or II with grade II-III mitral regurgitation. Mean age was 33.1 years (52.9% of patients younger than 23 years old). While performing preoperative transECHO studies the changes of the leaflets were evaluated using developed protocol based on precise Lam's anatomical classification of the MV. Leaflet prolapse or flail leaflet following destructive changes were the mechanisms responsible for regurgitation in 26 (76.5%) patients of second group. In first group we observed extensive destructive process. All patients were operated during 2–4 weeks since the onset of the disease. In 8 patients of second group were observed perforations which were sutured. Mitral valve repair was performed in 34 patients, MVR in 27 pts. A standard rigid prosthetic ring was used in 2 patients and in 2 patients the dosage segmental suture annuloplasty was performed as additional procedures.
Results: Hospital mortality was 2.9% in second group, 7.4% in first. In the early post-operative period in 3 patients of second group, it was necessary to fulfill MV replacement (8.8%). During one year after operation 4 patients were reoperated (2 underwent MV replacement and 2 repeat valvuloplasty). Trivial residual mitral regurgitation observed in 3 patients.
Conclusion: (1) Mitral valve repair for mitral regurgitation in active IE patients can be performed with low mortality and good valve func-tion. (2) Early repair may be advocated on the basis of pathomor-phological changes and valve reparability rather than regurgitation and symptoms.

C13 - 5

MITRAL VALVE REPLACEMENT WITH OR WITHOUT PRESERVATION OF SUBVALVULAR APPARATUS

Ivanov V., Domnin V., Evseev E., Popov S.
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Objective: The aim of this study to compare the differences of during mitral valve replacement (MVR) between preservation and no preservation of subvalvular apparatus for severe mitral regurgitations or mitral stenosis.
Methods: MVR was performed on 86 patients with mitral stenosis or severe mitral regurgitations with the mean age was 46.8±9.4 years (range, 18–66 years) between 2002 and 2005 are described. Thirty-six patients had preservation subvalvular apparatus (group I), 50 patients had preservation of the subvalvular apparatus (group II). We collected and analyzed the data of cardiac function obtained from the cardiac color doppler echo, which was performed preoperatively and at discharge.
Results: There appeared a long cross-clamp time in group I –66.9±20.9, in group II –65.8±12.6 min. We had not statistically significant changes in improvement ($P > 0.05$) by echocardiographic measurements postoperatively (cardiac index, stroke volume index and left ventricular stroke work index) between I and II groups.
Conclusion: We conclude that the subvalvular apparatus preservation in MVR had not significant short-term advantage by preserving left ventricular function for severe mitral regurgitation or mitral stenosis.

C13 - 6
PATIENT-PROSTHESIS MISMATCH IN AORTIC-VALVE REPLACEMENT
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Objective: The purpose of this study was to evaluate the clinical significance of patient-prosthesis mismatch (PPM) and develop practical recomendations for adequate valve selection before an operation.
Methods: To assess the prevalence of PPM and its influence on long-term survival, symptomatic status and quality of life we studied 500 consecutive patients undergoing aortic valve replacement. PPM was defined in 70 cases (14%). Patients with effective orifice area (EOA)/body surface area (BSA) ratio of <0.85 cm^2/m^2 showed unstable postoperative haemodynamic performance, excessive transvalvular gradients, decreased left ventricular hypertrophy regression. Overall postoperative mortality was 27 cases (5.4%). Postoperative mortality in the group of patients with PPM (indexed EOA <0.85 cm^2/m^2) was 35.6% (25 cases). Patients with and without PPM were not similar with respect to postoperative mean transvalvular gradient (21±7 mmHg vs. 14±5 mmHg, respectively). In patients with EOA <0.65 cm^2/m^2 mean transvalvular gradient was 35±2 mmHg. Moreover, long-term results also demonstrated that only in patients with PPM haemodynamic performance got worse.
Results: It is really possible to prevent PPM if one takes into account certain factors (BSA of a patient, aortic valve fibrous ring size, type and effective orifice diameter of a prosthesis) directly before an operation.
Conclusion: The optimal haemodynamic performance after aortic valve replacement is noted to occur when EOA/BSA ratio is of >0.85 cm^2/m^2. In this study w? also offer a special nomogramm for an individually-based prosthesis selection in order to avoid PPM.

C13 - 7
SOLO FREEDOM STENTLESS PERICARDIAL AORTIC VALVE: A NEW PROMESING HEART VALVE FOR THE OLDER PATIENTS
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Objective: Due to the aging population demographics and the need to avoid anticoagulation, a wide range of biological heart valves is available on the market. Stentless valves have gained in popularity because of advantages in hemodynamics and durability compared with stented bioprostheses. In addition, surgeon-friendly implantation is an important factor. This study was conducted to evaluate the benefits of the SOLO FREEDOM aortic heart valve with the postoperative hemodynamics and clinical outcome.
Methods: Between October 2004 and September 2005, 25 patients (11 women, 14 men mean age 76.2 years) underwent first time aortic valve replacement with the above mentioned valve. The indication for surgery was severe aortic stenosis. Ten patients had concomitant myocardial revascularisation. Ejection fraction was over 50% in all patients, except of one high risk patient, a 79-years-old lady with 25% of ejection fraction, left main stenosis, preoperative kidney failure who died of low cardiac output. Postoperative echocardiographic examinations were performed before discharge from the hospital and again three months later.
Results: There was no surgical implantation problem, mean X-clamping time was 46.4 min for the valve-replacement only and no re-operation due to prolonged bleeding was necessary. All patients survived the early postoperative period except this one patient; however one patient developed a transient ischemic stroke. Echocardiographic evaluation before discharge demonstrated favourable hemodynamics of the valve prosthesis with mean transvalvular gradients of 14-7 + 4-8 mmHg. Transvalvular gradients were even lower after three months follow-up. No regurgitation across the valve was seen in any of the cases. There was one paravalvular leak with no hemodynamic relevance, which was implanted at the beginning of our learning curve.
Conclusion: Early experience with the SOLO FREEDOM aortic heart valve is encouraging. It offers excellent hemodynamic results and low transvalvular gradients. It is a suitable device for patients in whom anticoagulation should be avoided, and offers a very surgeon-friendly implantation with short X-clamping time.

C13 - 8
OUTCOMES AFTER TRICUSPID VALVE REPLACEMENT
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Objective: Tricuspid valve repair is the treatment of choice for severe tricuspid regurgitation and several techniques have been proposed. However, in some cases tricuspid valve replacement is necessary to achieve an adequate tricuspid valve function. It is known that a high mortality is associated with this procedure. The purpose of this study is to evaluate the outcomes of tricuspid valve replacement in our service and the follow up of patients after discharge.
Methods: All patients with tricuspid valve replacement between January 1998 and December 2005 were included. Baseline clinical characteristic of patients were analysed. Survival of patients was analysed using Kaplan–Meier and long–rank tests. All patients were contacted by examination or by telephone.
Results: Between January 1998 and December 2005 197 patients underwent tricuspid valve surgery alone or together with another procedures. A total of 28 patients (14.2%) underwent tricuspid valve replacement forming our target population. Mean age was 59.9 (SD 8.7) with a female/male ratio of 22/8. 22 (78.6%) patients have received previous cardiac surgery. Rheumatic affection in association or not with functional tricuspid regurgitation was the most common cause of tricuspid valve regurgitation (64.3%). Seventeen patients were in NYHA class III and 11 were in NYHA class IV. Twenty two patients had received previous cardiac surgery, 8 with a previous tricuspid valve repair. 50% of patients suffered pulmonary hypertension. A biological prosthesis was implanted in 24 patients. Thirty-day mortality was 17.9% ($n = 5$). Pulmonary hypertension or previous cardiac surgery did not predict mortality. Mean follow up was 21.9 months. Two-year survival was 49.8%. After surgery 12 patients were in NYHA class I, four in NYHA class II and two in NYHA class III.
Conclusion: In our patients operative mortality was 17.9% after tricuspid valve replacement. Two-years survival was 49.8%. In those patients surviving surgery an improvement in NYHA class is expected. High risk factors as pulmonary hypertension or previous cardiac surgery did not increase mortality in our patients. Severe tricuspid regurgitation must be properly corrected in patients undergoing cardiac surgery.

C13 - 9
MULTIVARIATE ANALYSIS FOR OPERATIVE MORTALITY IN OBSRUCTIVE PROSTHETIC VALVE DYSFUNCTIONS DUE TO PANNUS AND THROMBUS FORMATION
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Objective: The aim of this study is to investigate the risk factors for early hospital mortality in the reoperations which were performed for obstructive prosthetic valve dysfunction.
Methods: Between January 1994 and April 2005, 63 patients underwent reoperation for obstructive prosthetic valve dysfunction. The mean age of the patients was 40.3±12.8 years. The mitral valve was replaced in 47 (74.6%) patients, the aortic valve in 6 (9.5%) patients and both valves in 10 (15.9%) patients. Forty-three (68.2%) patients were re-operated in emergency conditions.

Results: Early hospital mortality was seen in 13 (20.6%) patients. The ethiology of the valve dysfunction was pannus formation in 45 (71.4%) patients, thrombus formation in 18 (28.6%) patients. Pannus and thrombus were localized at the atrial side of the prosthetic valve in 15 (23.9%) patients, at the ventricular side in 13 (20.6%) patients, and at both sides in 35 (55.5%) patients. Inadequate anticoagulation was diagnosed in 28 (28/63; 44.4%) patients. Mean INR level in those 28 patients was detected as 1.43±0.24. In multivariate analysis, the risk factor for early hospital mortality was only left ventricular ejection fraction (P = 0.015; Odds: 0.000, 95% CI: 0.000–0.043).
Conclusion: Reoperations for prosthetic valve dysfunction have high mortality rate. This study revealed that left ventricular dysfunction is the major determinant of surgical mortality in patients requiring reoperation for valve dysfunction due to pannus or trombus.

C13 - 10
THORACOSCOPIC LUNG BIOPSY WITHOUT PLACEMENT OF AN INTERCOSTAL CHEST DRAIN – A SAFE OPTION ?
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Objective: Intercostal chest drains (ICD) have traditionally been placed following diagnostic pulmonary wedge resections by limited thoracotomy and by video assisted thoracoscopic surgery (VATS). We evaluated the validity and safety of postoperative management without chest tube placement for patients undergoing VATS lung biopsy.
Methods: Between May 2003 and September 2005, 64 patients underwent VATS lung biopsies at a tertiary care, university-affiliated teaching hospital. In January 2004, a single surgeon commenced avoiding chest tube placement in the absence of air leaks during an intraoperative sealing test - sustained inflation to 30–35 cm H_2O following resection and absence of bubbling at 90 s – using a Ryle's tube. Twenty three patients met the criteria during the period from January 2004 to January 2005. The median age of this group was 53 years. There were 9 women and 14 men. Four patients were excluded as they were operated upon by a different surgeon.
Results: The median postoperative stay for the 23 patients was 2 days. One patient had a postoperative pneumothorax requiring placement of an ICD. The other 22 patients had an uneventful postoperative period with good pain control.
Conclusion: Based on our initial experience, performing VATS lung biopsies without placement of ICDs is a safe procedure. We are now conducting a prospective, randomized trial to validate our initial observations and to assess the potential benefits of reduced postoperative pain and shorter hospital stay.

C13 - 11
NOVEL METHOD FOR BIOGLUE USE IN SURGERY FOR ACUTE AORTIC DISSECTION TYPE A
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Objective: Bleeding from anastomosis suture line is still actual question in aortic surgery. This report will summarize our experience using a novel method of bioglue application for distal and proximal anastomoses during reconstructive surgery for acute aortic dissection (AAD) type A.
Methods: Between January 2004 and October 2005, 20 consecutive patients were treated in our center for AAD. Moderate hypothermia (30 °C) with antegrade selective cerebral perfusion via the right subclavian artery was used during ascending aorta and hemiarch reconstruction in 17 and complete arch in 3 patients. Aortic walls were reinforced with dacron felt strips and bioglue sandwiching. Following construction of the distal anastomoses, bioglue was applied on the outside, simultaneously applying suction on the inside of prostheses, forcing the bio glue to impregnate the anastomotic site and needle holes. At the end of construction of the proximal anastomoses, bioglue was applied on the outside, simultaneously we increase the left vent and create a vacuum forcing the bioglue to impregnate the anastomotic site and needle holes.
Results: There was no re-exploration or early deaths as result of bleeding. Average daily chest tube drainage was 582±150 ml/day, with duration of 2±0.9 days
Conclusion: Our method is simple and safe to use, with excellent operative results and reduced chest tube drainage and need for transfusion.

C13 - 12
PULMONARY ENDOARTERECTOMY WITHOUT CIRCULATORY ARREST: A SINGLE CENTER EXPERIENCE
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Objective: The current surgical strategy for pulmonary endoarterectomy (PEA) involves the use of extracorporeal circulation (ECC) and profound hypothermia (18-20 °C). The aim of the present study was to test the feasibility of a novel strategy of extracorporeal circulation, which could prevent bronchial back bleeding and allow a bloodless operating field, avoiding the risks associated with profound hypothermia and CA in patients undergoing pulmonary endoarteriectomy.
Methods: We present our clinical experience in nine consecutive patients who underwent pulmonary endarteriectomy with a different strategy of extracorporeal circulation, which permits a bloodless operating field, without the need for deep hypotermic circulatory arrest.
Results: We were able to perform pulmonary endoarterectomy avoiding circulatory arrest and deep hypothermia without sacrify the effectiveness of the procedure.
Conclusion: The initial encouraging results have convinced us to apply systematically this technique in the cases operated in our center, even though further investigations are necessary to fully examine this technique.

C13 - 13
A COMPLEX AORTIC REPAIR FOR A BICUSPID VALVE ASSOCIATED TO AN ASYMMENTRIC ROOT DILATATION
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Objective: We present a 8 min video of a complex bicuspid aortic valve repair associated to an asymmetric dilatation of the non-coronarian Valsalva sinus (NCS).
Methods: The video starts with a complete valve and root analysis followed by a leaflet shaving technique to mobilize the valve and the replacement on the NCS by a scalloped tubular prothesis. Then we performed a partial subcommissural annuloplasty and a free edge reinforcement by a CV-7 Goretex suture to stabilize the repair and to recreate an Aortic root Functional Unit continuity.
Results: Two years after the procedure there is no echocardiographic evidence of aortic incompetence.
Conclusion: There are different ways to repair a bicuspid aortic valve that could be used with good results.

C13 - 14
MID- TO LONG-TERM OUTCOME ANALYSIS OF 1.161 ST. JUDE MEDICAL AND ATS OPEN PIVOT® VALVES IMPLANTED AT THE SAME INSTITUTION
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Objective: In an 11-years period, 1.161 patients underwent prosthetic cardiac valve replacement at our institution with St. Jude Medical (SJM) or ATS Open Pivot(r) (ATS) bileaflet valves, selected to surgeon's individual preference. In this comparative retrospective analysis, we evaluated the long-term clinical outcome of both prostheses.
Methods: A total of 605 SJM and 602 ATS prostheses were implanted in 758 male and 403 female patients [age: 66.0 years (15–89)] as isolated (n = 709) or combined (n = 452) procedure. 880 aortic, 235 mitral, 92 aortic+mitral valves were replaced. Coronary artery disease was evident in 30.1% of patients. Concomitant disorders and preoperative NYHA-grade related to prosthesis type or position did not differ significantly. Patient health status and outcome events were collected through in-house quality management database or ascertained via telephone contact with patients themselves and/or family physicians. Mann–Whitney test was used for quantitative comparison characteristics and Fisher's exact test and chi-square test for categorical ones. Time to event variables with censored values were described by Kaplan–Meier statistics. Adjusted differences between groups assessed with Cox proportional hazards models.

Results: Median follow-up time was 4.6 years with 98.9% complete follow-up achieved (5,624 cumulative patient-years). Overall 30-day mortality was 3.8% for aortic, 3.4% for mitral, and 6.7% for aortic+mitral valve replacement. No structural valve failure was encountered. After-discharge adverse events: Paravalvular leak SJM: 4 (0.13%/patient-year), ATS: 16 (0.64%/patient-year); thromboembolism: SJM: 29 (0.93%/patient-year), ATS: 27 (1.08%/patient-year); major bleeding requiring transfusion: SJM: 8 (0.26%/patient-year), ATS: 12 (0.48%/patient-year); valvular endocarditis: SJM: 1 (0.03%/patient-year), ATS: 3 (0.12%/patient-year). The estimated 10-year survival probability showed a statistically significant difference in aortic valve replacement with 65.3% ±4.0% for SJM compared to 79.6%±3.3% for ATS (P = 0.006), but not in mitral valve replacement with 67.3%±6.9 for SJM vs. 50.1%±12.4 for ATS (P = 0.221), and in aortic+mitral valve replacement with 74.0%±9.2 for SJM vs. 74.3%±10.0 for ATS (P = 0.984). The 10-year freedom from valverelated mortality was 95.6%±1.4% for SJM and 97.3%±1.2% for ATS prostheses (P = 0.362), independent of the implantation site.
Conclusion: According our 11-year experience, both bileaflet valves showed very good clinical results with low evidence of adverse events in the mid- to long-term outcome. A significant survival benefit in long-term course was observed with ATS valves in the aortic position. Gender and/or concomitant coronary artery disease were not predictors for reduced life expectancy.

C13 - 15
AORTIC INSUFFICIENCY REASONS IN ANEURYSMS OF THE ASCENDING AORTA BY TRANSESOPHAGEAL ECHOCARDIOGRAPHY
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Objective: The purpose of study was to detect the main reasons of the aortic valve insufficiency in aorta aneurysms.
Methods: Sixty patients (pts) with aneurysm of the ascending aorta underwent the multiplane TEE examination. Etiology of disease in 57 pts was the connective tissue disorders, 3 pts had atherosclerosis of the aorta. Twenty seven pts had DeBakey's type I or II dissection of the ascending aorta.
Results: Bicuspid aortic valve without hemodynamicly marked stenosis was found in 12 cases. Fifty four pts (90%) had aortic regurgitation (AR) and more than 1/2 (n-35) - severe AR (AR grade 3 or 4). The size of the aortic ring and the size of the aortic root was significantly larger in pts with severe AR (n35) than in pts with moderate AR (n-14). Ring:29.5±1.4 mm vs. 27.2±1.1 mm (P<0.003) and root: 57.6±2.5 mm vs. 51.1±3.9 mm (P<0.003). In 9 pts (33% of dissecting aneurysms) dissection at the level of sinuses, comissures and cusps and in 6 pts – diastolic prolaps of the intimal membrane to the left ventricle outflow tract led to severe AR.
Conclusion: The main reasons of severe aortic insufficiency in ascending aorta aneurysms are the enlargement of the aortic ring and aortic root due to annulo-aortic ectasia, lateral displacement of the comissures due to supraannular portion of the aorta dilatation, aortic dissection at the level of sinusis, comissures and cusps and diastolic intimal flap prolaps to the left ventrical outflow tract.

C13 - 16
SURGICAL CORRECTION OF HOCM AFTER FAILED TRANSCORONARY ABLATION OF SEPTAL HYPERTROPHY
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Objective: The elimination of the outflow obstruction with a myocardial infarction may lead to impaired ventricular function and predispose patients sustained ventricular arrhythmias. Althought it ablates part of the proximal septum, it does not alter diastiolic ventrical function. The classic Morrow technique does not allow to perform the complete resection of the muscular bar at the midventricular part of septum.
Methods: We present a 3 cases of HOCM surgical correction after failed transcoronary ablation of septal hypertrophy(TASH) in symptomatic patients 29.34 and 46 years. The level of obstruction was in the mid-left ventricular cavity and thickness of IVS was maximal in middle part (30.3+3.1 mm). Follow-up (1 year after TASH) showed no any symptomatic improvement and all patients had severe symptoms and functional limitations (NYHA class 3). Ventricular arrhythmias were registered by Holter monitoring after TASH in all patients. All patients were operated on using our technique. The excision of the hypertrophied area of the interventricular septum causing midventricular obstruction was performed from conal part of right ventricle in upper third part of IVS and in middle part anteriorly of the moderator band but without penetration into the left ventricular cavity. This excision of IVS umplies avoiding the damage of His bundle right branch.
Results: Follow-up echocardiography showed a significant decrease of intraventricular gradient after surgery from 83.2±11.8 to 7.1±4.8 mmHg, the septal thickness in middlle part of IVS was reduced 30.3 ? 3.1 vs. 16.2±2.3 mm. Significant symptomatic improvement (NYHA class 1) was noted postoperatively in all patients. Ventricular arrhythmias were not registered. Sinus rhythm was noted in all pt.
Conclusion: This method is a safe and effective technique for surgical correction of HOCM with severe hypertrophy and complications.

C13 - 17
A SINGLE-STAGE TECHNIQUE TO TREAT EXTENSIVE THORACIC AORTIC ANEURYSM: A NEW LESS INVASIVE METHODS
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Objective: Surgical repair of complex thoracic aortic aneurysm requires a two-step procedure. A single stage approach is described here combining the new hybrid prosthesis E-VITA OPEN by JOTEC and the PLEXUS 4 dacron graft by VASCUTEK. This method decreases lower body ischemia time and avoids deep hypothermia.
Methods: Via median sternotomy increased by a small left latero-cervical incision, during brachiocephalic trunk cannulation for cardiopulmonary bypass, a clamp is applied between left carotid and left subclavian artery which had previously been clamped. The aortic arch is opened, a suction line is placed in the distal aorta and the self-expanding nitinol stent graft of the E-VITA OPEN prosthesis (33 mm in diameter x 16 mm in length), selected on CT-SCAN data, is deployed in the descending aorta. The proximal woven polyester cuff of the hybrid prosthesis is trimmed and sewed to the PLEXUS graft. A second arterial line is connected to the PLEXUS side branch to start distal aortic perfusion in normothermia with supraaortic vessel perfused from a beating heart. Then left subclavian and carotid artery are sewed respectively to the third and second branch of PLEXUS prosthesis. After aortic cross-clamping and cardioplegia infusion the brachiocefalic trunk is connected and eventually the ascending aorta is replaced. De-airing is performed, aortic clamp removed and cardiac activity is promptly resumed.
Results: The lower body ischemia is 19 min, cross-clamp and extracorporeal circulation time is 30 and 64 min, respectively. The outcome was uncomplicated. The Magnetic Risonance Imaging at 2 months shows a good result.
Conclusion: We describe a one-step procedure to treat multisegment pathological conditions affecting the thoracic aorta (proximal, arch and descending aorta). However, follow-up is necessary to confirm long-term stability of this type of repair.

C13 - 18
SINGLE CENTER EXPERIENCE WITH THE NO REACT SHELHIGH STENTLESS VALVE IMPLANTED AT DIFFERENT SITES
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Objective: The Shelhigh stentless is a totally biological conduit available for implantation in aortic, mitral or tricuspid position. The valve is glutaraldehyde cross-linked, detoxified and heparintreated with No-React, a process that is expected to reduce calcification and tissue deterioration in the long term combined with superior hemodynamic properties. The initial clinical experience of implantation of this valve type in different sites is presented herein.
Methods: From August 2001 till July 2005 a total of 44 underwent a valve replacement procedure. Sixteen Patients received an isolated aortic valve, 10 patients received an aortic valve replacement in combination with CABG, 2 patients needed aortic valve replacement with De Vega plasty, in 4 patients a mitral valve was implanted, Four patients underwent a combined mitral and tricuspid valve replacement and in 6 patients received an isolated tricuspid valve operation. Fourteen of the operations were re-do-cases. Patients data were assessed retrospectively.

Results: Operationtime, crossclamp time, stay on ICU, time until discharge did not differ as compared to implantation of a "classical" biological valve. One intraoperative death occurred (2.2%). There were no valve related adverse events in surviving patients. In no case there was a necessity for reoperation due to either paravalvular leakage or insufficiency of the valve. None of the patients experienced any thromboembolic event or bleeding episode during hospitalization or the follow up period.
Conclusion: The Shelhigh stentless valve is easy to handle and implantation shows up to be save. It is also recommendable in complex cases. Whether the promised lower calcification rate and better hemodynamic long-term properties can be achieved will have to be assessed in future years.

C13 - 19
SINGLE-SUTURE LINE PERICARDIAL STENTLESS VALVE : A NEW TREATMENT FOR AORTIC VALVE SURGERY
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Objective: Pericarbon Freedom stentless (PF) valve (Sorin Biomedica Cardio, Saluggia, Italy), is available in the marketplace since 1991 and with the detoxification post-treatment since 2000. The conventional implant technique for PF valve consists of two suture lines (inflow and outflow). Some years ago Dr. O'Brien applied the single-suture line technique to porcine stentless valves for a supraannular implantation. The single suture approach for PF consists of a personal modification by trimming away all the extra tissue of the valve inflow side and scalloping the outflow side. In addition to that pericardium fully retains the sutures. Tearing, as reported with aortic porcine wall, is less likely to occur.
Methods: Between February 2002 and August 2004 65 patients (48% male, mean age 69–12 years) underwent aortic valve replacement at our Institution with PF implanted with a single suture line. Most recurrent ethiology was senile degeneration (80%). PF 25 and 27 mm were the most implanted sizes. Thirty patients had concomitant procedures (mainly CABGs, 16 patients). Overall cross clamp time was 76–21 min.
Results: All patients survived intervention. One patient died early for multi organ failure (16th postoperative day). There were 4 early non valve related complications and no late complications at a mean follow-up of 491–270 days. Four patients showed trivial central prosthetic regurgitation at intraoperative TEE, among them only 1 confirmed at 6-month TTE. At post-operative echo assessment mean pressure gradient was 10–7 mmHg, and peak pressure gradient 18–12 mmHg.
Conclusion: Our initial experience showed that the single-suture technique applied to the PF valve is safe and reliable, even though it requires an adequate experience. Careful sizing and respect of surgical/anatomy indications are mandatory. Clinical outcomes are similar to those obtained with other techniques with satisfactory hemodynamic performance. Freedom SOLO (FS) valve, now available in the market, is pre-trimmed by the manufacturer for the single-suture line implant technique in supra-annular position.

C13 - 20
MITRAL VALVE REPAIR WITH MINIMALLY INVASIVE TECHNIQUE
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Objective: Minimally invasive mitral valve surgery with Port-Access technique constitutes an alternative to standard sternotomy. A wider diffusion of this surgery is limited by its more demanding technique. Reduced trauma, low morbidity, fast recovery and better cosmetic results are the goals of this procedure. We reviewed short and mid-term results after six years.
Methods: From October 1999 to November 2005, a group of 155 patients (mean age: 57.9) underwent mitral valve repair with Port-Access technique through a 4 to 6 cm right anterolateral thoracotomy. Severe (4+) MR was seen in 134 patients (86.4%). In 10 patients, (6.4%) contemporary closure of atrial septal defect was done. In 18 patients, (11.6%) chronic or persistent AF was treated with cryoablation or microwave.
Results: Hospital mortality observed was 0.6% (one patient, 81 y.o., died with multi-organ failure). Mean cross-clamp time was 64.8±13.6 min. Re-entry for bleeding was necessary in 10 cases (6.4%). Five patients (3.2%) had conversion to sternotomy. No cases of aortic dissection were seen. Mean hospital stay was 5.5±4.8 days. One patients suffered of neurological damage at discharge, two had transient episodes. New onset of atrial fibrillation was present at 23.1% rate. Follow-up showed trivial or no mitral regurgitation in 128 cases (82.5%), 22 cases (14.1%) of mild to moderate MR was seen. Five patients underwent MV replacement during the follow up period, two of them for endocarditis.
Conclusion: Port-Access mitral valve repair constitutes an alternative technique to standard sternotomy, despite a longer learning curve. Good mid-term results can be achieved. Early discharge, and reduced trauma, constitute a marked advantage, surgical treatment of atrial fibrillation is also feasible. A wider use of this technique should be encouraged.

C13 - 21
PRIMARY LVAD OR ECMO IMPLANTATION IN LOW-CARDIAC-OUTPUT SYNDROME FOLLOWING CARDIAC OPERATION
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Objective: Low-cardiac-output (LCO) syndrome is a rare but severe complication following cardiac operation using extracorporeal circulation (ECC). Mechanical support is often the only therapeutic option for survival. However, the question whether primary left ventricular assist device (LVAD) implantation or primary extracorporeal membrane oxygenation (ECMO) followed by secondary LVAD implantation is superior remains unclear.
Methods: We retrospectively analyzed the pre- and post-transplant outcome of 33 patients with LCO following open heart operation using ECC. In 20 patients, LVAD implantation was performed directly (LVAD group) and 13 patients received and LVAD secondary following primary ECMO support (ECMO group).
Results: Age (45.9±16.8 vs. 41.7±15.3 years), gender (male, 85% vs. 77%) and LVAD duration (113±175 vs. 95±129 days) were comparable in both groups (LVAD vs. ECMO group, all P = ns). Reason for LCO following open heart operation was previous coronary-artery bypass grafting in 80% vs. 77% (LVAD vs. ECMO group), aortic valve replacement in 19% vs. 23% and congenital operation in 1%. LVAD implantation was performed after 2.7±3.1 days following primary cardiac operation in the LVAD group and 2.5±1.6 days following ECC in the ECMO group after a mean of 2.1±1.6 days of primary ECMO support. In the LVAD group LVAD implantation was performed, while the patient was still on ECC from the previous open heart operation in 45%, while ECMO implantation was performed while the patient was on ECC in 62.5%. External devices (Thoratec or ExCor BerlinHeart) were implanted in 60% of the LVAD group and 79% of the ECMO group (P<0.05). Mortality was 75% in the LVAD and 69% in the ECMO group (P = ns). Reasons were primarily multi-organ-failure and right-heart-failure. Following cardiac transplantation 2 out of 5 died in the LVAD group and none in the ECMO group.
Conclusion: Outcome of LCO following open heart operation with the use of the ECC remains poor. Primary LVAD implantation or secondary LVAD implantation following primary ECMO support has no impact on survival. However, if bridging to HTx is successful, prognosis is good.

C13 - 22
A NEW STERNAL REINFORCEMENT DEVICE FOR PATIENTS AT HIGH RISK: EARLY EXPERIENCE
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Objective: Sternal wound complications after median sternotomy vary from persisting thoracic pain to sternal instability and wound dehiscence and present high risk for mediastinitis. The aim of this study was to evaluate the feasibility and the benefits of a new mechanical sternum reinforcement system in preventing sternal wound dehiscence.
Methods: A new sternum reinforcement device, made in titanium, was implanted, after ethical committee approval, in selected 30 patients at risk for sternal wound dehiscence. Mean age was 72.8±5 years. All patients underwent surgery for myocardial revascularization, of those 9 with both internal thoracic arteries. Seven patients presented peripheral vascular disease and five required combined procedure. Eleven patients presented diabetes mellitus 8 chronic obstructive pulmonary disease. In 5 patients, iatrogenic complete or partial hemisternum fractures were observed. At end of surgery, the device, formed by single units connected to each other to form a variable length of chain positioned in the intercostals-parasternal spaces. As well, an electromechanical traction test was conducted on six sternal

models (3 reinforced) rewired after midline sternotomy and separation data analysed by repeated measures anova.
Results: The electromechanical test showed more lateral displacement of the unreinforced models ($P = 0.001$); Four to six units, two to three units in each hemisternum, have been implanted in each patient. No intra and post-operative related complications were observed. No wound dehiscence has been observedin early postoperative and maximum follow-up of 12 months.
Conclusion: This sternal reinforcement device avoids stainless steel wires cutting through the bone, allows the use of stainless steel wires in patients with osteoporosis sternum or with complete or partial bone fractures. The electromechanical test and first clinical results suggest that the new sternal reinforcement device might be of benefit in preventing sternal wound dehiscence in selected high risk patients.

C13 - 23
POST-CLAMPING TIME IS A STRONG PREDICTOR FOR HOSPITAL AND LATE MORTALITY
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Objective: A new predictive risk factor for mortality has been evaluated in patients who underwent aortic valve replacement with the CarboMedics valve.
Methods: Between June 1993 and May 2001, 269 patients (average age, 63.9 years) received a Carbomedics 'Top-Hat' supraannular aortic prosthesis. Primary valve replacement was performed on 203 patients (75.5%) and repeat valve replacement on 66 (24.5%). The duration of myocardial ischemia was 70.2±31.4 min, cardiopulmonary bypass 96.1±48.3 min, and postclamping time (time between release of aortic clamp to the end of extracorporeal circulation) 22.1±41.3 min. The mean follow-up was 82.3±17.8 months. Follow-up was 97.6% complete.
Results: The hospital mortality was 5.9%. Hospital mortality was 1% when duration of postclamping time was <15 min, 2.8% between 15 and 29 min, 13.2% between 30 and 44 min, and 26.9% >44 min. In the multivariate analysis, postclamping time, urgent surgery, and body mass index were statistically significant risk factors for hospital mortality. The late mortality was 17.1%. Cardiac-related mortality showed a linearized rate of 18.1% per 1000 patients-year. The Kaplan–Meier for cardiacrelated mortality was 75.0% at 10 years. Postclamping time, aortic valve gradient, age over 70 years, and BMI were statistically significant risk factors for cardiac-related late mortality. The incidence of paravalvular leak in the 'Top-Hat' aortic prosthesis was 1.7% per 1000 patients-year.
Conclusion: Using the CarboMedics supraannular prosthesis allows implantation of a larger prosthesis without increasing valve-related complications. Postclamping time appears as a strong predictor of both hospital mortality and late cardiac-related death.

C13 - 24
ECHOCARDIOGRAPHY-GUIDED CATHETER DRAINAGE OF HEMODYNAMICALLY CRITICAL, TAMPONADE-CAUSING PERICARDIAL EFFUSION
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Objective: Pericardial tamponade causes hemodynamic instability that frequently requires surgical intervention, of particular challenge is when tamponade develops in the anticoagulated patients soon after cardiac surgery.
Methods: Records of 21 patients presenting with cardiac tamponade secondary to pericardial effusions were reviewed. Six had previous cardiac surgeries, whereas, 15 presented with spontaneous pericardial effusion. Five were fully anticoagulated; 3 presented with rhythm disturbances; 8 were unstable at presentation. Two approaches were utilized to relieve the tamponade-causing pericardial fluid, an open surgical approach or an echo-guided percutaneous drainage. The surgical approach was via sternotomy in 1 patient; subxyphoid approach in 7; thoracotomy in 8; and via percutaneous catheter insertion in 5. The surgical entry was carried out in accordance with established and previously publjshed techniques. In the echo-guided group, drainage was performed with anesthesiologist provided echocardiography guidance, with the surgeon inserting a needle through the chest wall into the fluid filled pericardiac space. Once the needle tip is echocardiographically identified in the peri-cardiac space, the wire is introduced followed by successively increasing dilators and finall insertion of chest tube over the guiding wire.
Results: All patients did well post-operatively. There was no operative mortality or morbidity with complete resolution of the pericardial effusion and no evidence of recurrence on follow-up visits at six months.
Conclusion: This process of active echo-aided visualization of large dilators as they are placed in the pericardial space increases the confidence of the surgeon to place the large dilators and the catheter. Complete drainage could then be confirmed. In conclusion, pericardial tamponade drainage can be safely carried out utilizing minimally invasive echo-guided trans thoracic catheter technique with equal efficiency as the more established surgical procedures.

C13 - 25
EDWARDS PERIMOUNT MAGNA BIOPROSTHESIS: REFERENCE VALUES FOR PREOPERATIVE PREDICTION OF PATIENT-PROSTHESIS MISMATCH
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Objective: Preoperative prediction of patient-prosthesis mismatch following AVR can be based on in vivo data previously reported for each bioprosthesis. We evaluate early postoperative hemodynamic performance of the Edwards Lifesciences third generation Perimount Magna bioprosthesis in order to establish baseline parameters to be used for preoperative prediction of patient-prosthesis mismatch.
Methods: Data from 67 patients undergoing aortic valve replacement and receiving Edwards Perimount Magna bioprosthesis were collected. Postoperative in-vivo hemodynamic performance was evaluated at rest using trans-thoracic echocardiography just before patient discharge. Data were analyzed according the prosthesis size with evaluation of intra-size variability.
Results: Mean size prosthesis implanted was 22.8±1.8 mm (range 19–27). Mean EOA (Effective orifice area) and EOAI (Effective orifice area index) were 1.67±0.6 and 0.92±0.3 cm^2 respectively. Mean and peak gradients were 9±5 and 20±9 mmHg respectively. Good statistical linear regression correlation was shown between valve size and both EOA and peak gradient. According to previously defined definition of mild and severe patient prosthesis mismatch (EOAI< 0.85 and <0.60 cm^2/m^2, respectively) the overall incidence was 18/67 (26%) and 8/67 (11.9%), respectively. Size by size analysis revealed mean values which compare favorable with the values currently reported for Edwards Perimount classical (EOA = 1.10±0.28, 1.46±0.53, 1.61±0.37, 1.93±0.55 and 2.47±0.90 cm^2 for size from 19 to 27, respectively).
Conclusion: Newly introduced third generation pericardial Perimount Magna bioprosthesis allows for satisfactory early postoperative performance, which compare favorable with the data currently available for classical Perimount. Based on satisfactory clinical outcome and on low variability of our series these data could be useful to preoperative prediction of patient prosthesis mismatch.

C13 - 26
CARDIAC MYXOMAS PRESENTING AS CLINICAL EMERGENCIES
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Objective: To present the outcome in a series of cardiac myxomas admitted as clinical emergencies.
Methods: Five men and 3 women 32–70 years old (med. 51.6 y) were admitted in our service as clinical emergencies after being diagnosed as cardiac myxomas. Their diagnostic work-up included TTE, TEE and coronary angiography. Four of them presented with pulmonary edema, two of them with evolving MI, one with femoral artery embolization and another with supraventricular tachycardia difficult to control. After their medical stabilization and femoral embolectomy in one, they underwent removal of large myxomas occupying most of the left atrium, pulmonary vein orifices and obstructing the mitral valve. The atrial septum was closed with pericardium in all cases except one (left ventricular myxoma). In the two cases of evolving MI, thrombolysis was avoided due to the appropriate diagnostic work-up and high index of suspicion. In those cases single CABG was performed in addition. All cases underwent normothermic CPB and crystalloid cardioplegic arrest.
Results: There was no operative mortality and the ICU stay ranged from 24 to 48 h. The total hospital stay was 7 days. All patients have been followed

with serial echoes and have been in satisfactory clinical condition for over ten years.
Conclusion: Cardiac myxomas can present as clinical emergencies with embolization or acute heart failure. With the appropriate diagnosis and high index of suspicion they can be managed successfully with satisfactory short and long-term outcome.

C13 - 27
EMERGENT MITRAL VALVE REPLACEMENT IN PATIENT WITH ACUTE MITRAL REGURGIDATION AFTER PERCUTANEOUS BALLOON VALVOTOMY
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Objective: Percutaneous mitral balloon valvotomy (PMV) has been accepted as an alternative to surgical mitral commissurotomy in the treatment of patients with symptomatic mitral stenosis. Most fatal complication of this procedure is acute mitral insufficency. We reported emergent mitral valve operations after balloon valvotomy.
Methods: We investigate 17 patients undergone emergent surgery after mitral balloon vavotomy between February 1999 and march 2005. There were 8 (47%) male and 9 (53%)female patients. All patients had mitral valve area narrower than 1.8 cm^2 and none have mitral insufficiency before PMBV. In addition to acutely progressing dyspnea, hypotension and symptos of lung edema, ecocardiographic severe mitral insufficiency were demostrated after PMBV. Patient with cardiogenic shock, lung edema, and NYHA class III-IV patients with 3rd or 4th degree mitral regurgidation were operated in emergent conditions. In all cases valves were either severely calcific or with more than one cordae ruptured which does not allow valves to be repaired. Posterior cordae were seen to be spared in only 4 patients.
Results: We don't have in-hospital mortality. Two (11.7%) patients needed intraaortic baloon counterpulsation. Patiens were followed in ICU for 48±12 h with dopamin infusion (7±4 μg/kg/min) and postoperative extubation time was 12±4 h. Mean stay in hospital was 7±1.5 days. One patient had suffered superficial sternal infection which was treated local care.
Conclusion: PMBV is one of the method with satisfactory results in patient with isolated mitral stenosis. However, it needs special attention to quality of mitral vave for patient selection. While doing this procedure patients may prone to mitral vave replacement because of most severe complication; acute mitral insufficiency.

C13 - 28
TRIPLE VALVE PROCEDURES; THE IMPACT OF RISK FACTORS ON MID AND LONG TERM
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Objective: We aimed to determine the influence of preoperative, intraoperative and postoperative variables on mid and long-term results in patients undergoing triple valve surgery.
Methods: Between September 1989 and December 2003, 157 patients underwent triple valve surgery (either replacement of aortic, mitral and tricupid valves or combined replacement of aorta and mitral valves with tricuspid valve repair). Preoperative, operative and postoperative data was analyzed retrospectively and evaluated for risk factors affecting hospital mortality, short and long-term survival.
Results: There were 105 women (66.9%) and 52 men (33.1%) with a mean age of 41.8±11.6 years underwent triple valve surgery. The hospital mortality was 2.5% (4 patients). Multivariate analysis revealed that New York Heart Association functional class IV, low left ventricular ejection fraction (<35%) and increased left ventricular end diastolic diameter (LVEDD >50 mm)were associated with increased short and long-term mortality. The freedom rate from reoperation and thromboembolic complications at 5 years were 93%±4% and 81%±7%, respectively. In echocardiographic assesments significant decrease in left ventricular end diastolic and endsistolic diameters.(53.1±8.3 vs. 50.1±7.1, $P = 0.002$ and 35.3 ±7.4 vs. 32.6±7.2 $P = 0.002$) was observed.
Conclusion: Triple valve surgery offers satisfactory short and long-term results and prevents ventricular dilatation. Mortality significantly decreases if surgery is performed before left ventricle functions deteriorate.

C13 - 29
HAEMODYNAMIC PERFORMANCE AT ONE YEAR FOLLOWING RANDOMIZED COMPARISION STENTLESS VS STENTED BIOPROSTHESIS
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Objective: In a randomized study, we have previously reported favourable early hemodynamic performance of the recently introduced Edwards Perimount Magna compared to both standard Perimount and Prima Plus Stentless bioprosthesis. However, hemodynamic performance of stentless valve have been shown to improve after one year from implantation and to better elucidate the real benefit of the Edwards Perimount Magna we now report the one-year follow up.
Methods: In our previous study over 60 patients enrolled, hemodynamic performances were collected for 56 patients at the time of discharge. All 56 patients were reviewed at 1 year follow up and hemodynamic performances as well as clinical status were recorded.
Results: The 1-year follow up shows the largest improvement in the Prima plus stentless valve group with an improvement of EOA and EOAI (0.08±0.04 and 0.03±0.03, respectively) and a reduction of transvalvular peak gradient. Both Perimount and Magna showed conversely a reduction in EOA and EOAI while peak and mean transvalvular gradient were also reduced. However, at 1 year, overall value of EOA and EOAI for Perimount Magna (1.82±0.67 cm^2 and 1.00±0.37 cm^2/m^2 respectively) were still superior when compared to both Prima Plus Stentless (1.56±0.32 cm^2 and 0.90±0.17 cm^2/m^2, respectively) and standard Perimount (1.41±0.43 cm^2 and 0.76±0.2 cm^2/m^2, respectively).
Conclusion: Edwards Perimount Magna stented valve maintains the best hemodynamic performance, at 1 year follow up, compared to both Prima plus and Perimount classic. The improvement in hemodynamic performances of the Prima Plus stentless valve after 1 year was not sufficient to match the excellent early postoperative results of Perimount Magna. Therefore, we continue to support the use of this new generation stented bioprosthesis as prosthesis of choice for AVR in the elderly.

C13 - 30
RECONSTRUCTIVE SURGERY OF THE AORTIC ROOT AND AORTIC VALVE IN PATIENTS WITH AORTIC INSUFFICIENCY
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Objective: To evaluate the results of aortic valve-sparing operations in 64 patients with aneurysm of ascending aorta and aortic insufficiency.
Methods: From January 1998 to December 2005 in RICP were performed 170 operations in patients with aneurysm of ascending aorta. Among these, the valve-sparing operations were performed in 64 patients with degenerative aneurysm of ascending aorta and aortic insufficiency. There were 54 men and 10 women. The mean age was 49.1±10.9 (range from 16 to 65). The aortic dissection was diagnosed in 26 cases (41%): 8 patients (12.5%) had acute dissection, 18 patients (28.1%) – chronic aortic dissection. All patients, whom were performed aortic valve-sparing operations, based on surgical technique were divided into 4 groups: 1st group ($n = 25$) – aortic aneurysm resection with supracoronary replacement, 2nd group ($n = 18$) – replacement of ascending aorta and noncoronary sinus (Wolfe technique), 3rd group ($n = 17$) extravalvular replacement of the ascending aorta with reimplantation of coronary ostia (David technique), 4th group ($n = 4$) – Yacoub technique. As concomitant procedures the replacement of aortic arch was performed in 27 patients, replacement of Brachiocephal trunk in 2 patients, CABG in 4 patients. On Echo data, in 1st group the mean diameter of aortic annulus was 25.9±1.4 mm; ascending aorta-57.1±11.1 mm; in 2nd group-25.7 ±1.9 mm and 72.4±21.6 mm; 3rd group-28.7±2.1 and 64.3±14.8; 4th group-27.4±0.9 and 68.2±14.2 mm, respectively.
Results: Based on TTE data in postoperative period the EF increased from 57.7±0.5% to 62.1±1.6%, the grade of aortic insufficiency decreased from 2.3±0.7 to 0.7±0.5, the diameter of aortic annulus decreased in 1st group -25±1.1 cm, 2nd-25.2±1.4 cm, 3rd-25.9±1.5 cm, 4th-26.9±0.9 cm. The hospital mortality was 7.9% (5 patients). Three patients-from multyorgans failure and two another patients from progressive heart failure and stroke respectively.
Conclusion: The results of this study can provide the good clinical and haemodynamic data in patients with aneurysm of ascending aorta and aortic insufficiency, whom were performed aortic valve-sparing surgery. These results were supported by TTE data in early postoperative period. Aortic

valve-sparing operations in patients with degenerative aneurysm of ascending aorta can correct concomitant aortic insufficiency and avoid complications due to aortic valve replacement.

C13 - 31

SURGICAL TREATMENT OF CHRONIC TYPE A AORTIC DISSECTION COMBINED WITH CORONARY ARTERY BYPASS GRAFTING

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Objective: The aim of the study was to evaluate the operative and postoperative findings of patients operated for concomitant chronic type A aortic dissection and coronary artery disease.
Methods: Between 1995 and 2005 a total of 83 patients were operated for chronic Stanford type A aortic dissection. Among these patients 14 (16.87%) had associated severe CAD that was treated concomitantly. Mean age of the 14 patients was 58.07. Twelve patients were male and 2 were female. Hypertension was the most common associated disease present in all patients. Only ascending aorta was replaced in 8 patients (57.14%). Ascending aorta and hemiarch replacement was performed in 3 patients (21.43%). Modified Bentall procedure was performed in one (7.14%) and Arch replacement with "Elephant trunk" procedure was performed in the last patient (7.14%). The right coronary artery was the most frequent revascularized vessel in this study.
Results: Two patients (14.29%) died in the early postoperative period. The reason of death was low cardiac output in one patient and neurologic complication in the other one that also received carotid endarterectomy in the same session. Morbidity was seen in 3 patients (21.43%). One patient developed hemiparesia that resolved completely in one month, wound infection was detected in the second patient and low cardiac output in the third.
Conclusion: CABG was indicated in 16.87% of patients with chronic type A aortic dissection in our study. This shows us that it is important to perform coronary angiography in patients with chronic type A aortic dissection. In contrast the role of coronary angiography before emergency repair of acute aortic dissection is still controversial and it is not performed in many institutions because of time limitation. The mortality and morbidity rates were relatively high in patients with chronic aortic dissection that received combined aortic repair and CABG.

C13 - 32

SURGICAL TREATMENT FOR ASCENDING AORTA ANEURISM: 70 PAT. TREATMENT RESULTS

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Objective: To evaluate results of surgery for ascending aorta aneurism and methods of its correction.
Methods: Since January 2003 to December 2005, 70 patients have been operated on for ascending aorta aneurism (AAA). Age range was 6–70 years (45.2 + 10.2). AAA dimensions were from 48 mm to 105 mm (68 + 8 mm). Min. ejection fraction was 35% (mean 49%). In 1 case AAA was associated with aorta coarctation, in 2 (2.8%) subaortic membrane. Aortal dissection I type (DeBakey) – in 14 (20%) patients, II type - 6 (8.5%). Combined disease of the coronary arteries and AAA in 5 (7.1%) cases. Mitral valve disease (insufficiency) was in 1 case. Insufficient blood circulation (NYHA): 40 (57.1%) patients III FC, 24 (34.3%) II FC, 6 (8.6%) - IV FC. Etiology: atherosclerosis in 39 (55.7%), Marfan syndrome - 15 (21.4%), bicuspid aortal valve - 4 (5.7%), connective tissue dysplasia syndrome – 9 (12.8%), infective endocarditis, posttraumatic - 3 (4.3%). In 38 (54.3%) cases Bentall technique was performed. In 1 (1.4%) case - aortic coarctation resection, Bentall technique was the second stage. Supracoronary grafting of the ascending aorta was in 22 (31.4%), Wolfe's procedure in 1 (1.4%), David's operation in 8 (11.4%) cases. Associated procedures were: in 3 cases-supracoronary aorta grafting, MCB+CABG2, in 2 – Bentall's + MCB, in 1 case – supracoronary aorta grafting with wedge plasty of the left coronary artery trunk with an autopericardial patch. In patients with subaortic membrane – membrane removal. One patient underwent mitral valve grafting and Bentall procedure. Valve-containing conduit MedEng-2 with Vascutek graft was applied for Bentall procedure, Vascutek graft was used for aortic valve function reconstruction, for mitral valve grafting - artificial heart valve MedEng -2 (31). Operation scheme was "aorta - right atrium", in patients with aorta dissection - "femoral artery - right atrium". Hyperthermia was 20-300?, ante-retrograde cardioplegia (Custodiol). Time of aorta clamping from 69 to 206 min (mean rate 127 + 27). Circulatory arrest was applied in 14 patients - from 15 to 79 min (mean rate 42+ 19). Time of extracorporeal circulation was from 145 to 330 min. (mean rate 202 + 35 min).
Results: During the immediate postoperative period 2 patients (2.8%) died. Acute cardiac-vascular insufficiency with decreased myocardial contractility of the left ventricle (EF – 35%), in other patient – acute renal insufficiency.
Conclusion: surgical treatment for AAA shows satisfactory immediate results with individual choice of surgical technique.

C13 - 33

AORTIC EDWARDS-MIRA MECHANICAL BILEAFLET PROSTHESIS: PERMEABILITY INDEX AND MIDTERM RESULTS OF A MULTI-CENTRE STUDY

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Objective: The aim of the study was to assess the midterm clinical and haemodynamic results of the Edwards Mira curved bileaflet prosthesis in aortic valve replacement.
Methods: From June1998 to October 2000, 117 patients Mean age at implantation was 64 years (range, 31–78 years) underwent an aortic valve replacement with the Edwards Mira valve in three French institutions. There where fourty concomitant procedures (n = 40) (11 CABG, 5 mitral valve repair, 3 MVR, 10 ascending aortic replacement, 5 septal myomectomie, 6 others) Clinical status, haemodynamic performance and valve related complications were assessed. Serial echocardiographies were performed at discharge and at two years follow up at least.
Results: Operative mortality was 0.8% (n = 1). Follow up was 100% complete (594.1 patient-years). Actuarial Survival at 1, 3 and 5 years was 96.5±1.7%, 93.9±2.2% and 88.4±3.0% respectively. Five years Freedom from: thromboembolism was 96.2 ±1.9%; bleeding events 97.3±1.5%; non-structural dysfunction 97.2±1.6%. There was no structural dysfunction. Early endocarditis occurred in one patient. Infra clinical haemolysis according to Skoularigis criteria was noticed in 5 patients. Peak and mean gradients significantly decreased (P = 0.001, P = 0.03, respectively). Permeability index is 53.3% at 28 months.
Conclusion: The Edwards Mira aortic valve appears to be promising mechanical valve prosthesis with excellent haemodynamic performance, good midterm survival and low valve related complications rate.

11.00-13.00
MAY 14, 2006 4TH CONGRESS DAY

14TH CARDIAC SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

C14 - 1

IS MAGNESIUM ADMINISTRATION EFFECTIVE IN POSTOPERATIVE BLOOD LOSS UNDERGOING CABG PATIENTS

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Objective: Hypomagnesemia after coronary by-pass surgery is considered a contributing factor for post operative AF and magnesium, like several other pharmacologic agents, has been used in the prophylaxis of postoperative AF with varying degrees of success. Studies have demonstrated that magnesium can suppress platelet activation by either inhibiting platelet-stimulating factors such as thromboxane A2 or by stimulating synthesis of platelet-inhibitory factors such as prostacyclin (prostaglandin I2), and administration of magnesium reduces platelet aggregability in healthy volunteers. The purpose of this study was to evaluate the effect of magnesium treatment on postoperative blood loss and platelet functions of patients who have undergone coronary by-pass surgery.
Methods: After drugs like aspirin ang clopidegrol which could effect platelet functions and bleeding volume had been discontinued ten days before elective, isolated, first-time coronary artery bypass grafting surgery, a total of 72 consecutive patients were prospectively randomized to two groups. Patients in the magnesium group (n = 38) received 6 mmol $MgSO_4$ infusion in 100 ml 0.9% NaCl solution (25 ml/h) during per-operative period. Patients in the control group (n = 34) received only 100 ml 0.9% NaCl solution (25 ml/h). Total post-operative blood loss volumes of all patients were recorded and platelet functions were analyzed before and after operation by using platelet function analyzer (PFA-100, Dade Behring, Germany) with collagen and/or epinephrine and collagen and/or adenosine diphosphate cartridges.
Results: There were no differences between the two groups with regard to age and sex. Total blood loss of the patients received magnesium treatment were significantly higher than the control patients (966.49±409.31 vs. 764.00±365.71 ml, $P = 0.027$). Although no significant difference between two groups was detected with regard to collagen epinephrin closure time measured before operation, lengthening in collagen epinephrin closure time measured before and after operation were also significantly higher for the patients received magnesium treatment (35.41±52.86% vs. 0.18±28.46%, $P = 0.013$).
Conclusion: Magnesium usage during per operative period for the prophylaxis of arrhytmias following coronary artery by-pass surgery can increase blood loss during post operative period by affecting platelet functions. For operations which have high risk or can cause high blood loss, avoidance of magnesium treatment should be considered.

C14 - 2

PERIOPERATIVE COURSE OF PRO- AND ANTIINFLAMMATORY CYTOKINES: DISTURBED BALANCE IN SYSTEMIC INFLAMMATORY RESPONSE SYNDROME (SIRS) AFTER CARDIOPULMONARY BYPASS

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Objective: Despite mortality after CPB has significantly decreased in recent years, a systemic inflammatory response syndrome (SIRS) can be the cause of fatal clinical outcome. Release of cytokines and complement induced this whole body inflammatory reaction. We looked for possible differences between patients with and without SIRS after CPB.
Methods: Over a period of 2 years, we performed a prospective study using standardized operative procedures with CPB. During this time, a group C (control group without SIRS, $n = 20$) was compared to a group S (patients with postoperative SIRS, $n = 10$) regarding pre-, intra-, and postoperative data. Additionally, at 6 time points beginning before and ending 2 days after surgery we measured plasma levels of complement 3a (C3a), tumor necrosis factor (TNF1alpha), and interleucins IL1b, IL6, IL8, IL10 with ELISA technique. All data were compared by T-test or x2-test and $P<0.05$ was regarded as significant.
Results: In the control group C, all patients had a uneventful postoperative course. In the SIRS-group S 8 patients (66.7%) died. We found significantly higher levels of C3a (760±88 vs. 310±47ng/ml) and TNF (210±22 vs. 37±8 pg/ml) in SIRS patients during the operation. The perioperative course of proinflammatory cytokines IL-6 (270±72 vs. 150±23 pg/ml) and IL-8 (55±15 vs. 22±3 pg/ml) were significant increased, whereas the anti-inflammatory cytokine IL-10 (135±18 vs. 310±40 pg/ml) was significant decreased in group S, compared to patients without SIRS.
Conclusion: Cardiopulmonary bypass shows a complex pattern of changes in the cytokine network with a significant increase in both pro- and anti-inflammatory mediators. In cases of SIRS, a higher and longer release of proinflammatory cytokines with a lack of anti-inflammatory cytokines was detectable which may contribute to myocardial cell damage and myocardial dysfunction in these patients.

C14 - 3

MECHANISM ASSOCIATED WITH POSTOPERATIVE BLEEDING IN CARDIOPULMONARY BYPASS PATIENTS

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Objective: The incidence of postoperative bleeding (excessive bleeding: >1 l in 24-h bleeding) and transfusion requirements for major cardiac surgical interventions varies widely. Factors related to preoperative status and medication, Cardiopulmonary bypass (CPB), activation of coagulation, fibrinolysis and complement, all play a determinant role in postoperative bleeding.
Methods: We performed a nested case-control study of 26 patients (15 men; mean age 64.5 years, SD 1.4), from a clinical trial of 50 Cardiopulmonary bypass patients, who did not receive antifibrinolytic prophylaxis. Surgery performed was: 12 coronary artery bypass graft (CABG), 10 valvular replacement and 4 patients underwent both procedures. Variables were collected preoperatively, at Intensive Care Unit admission, at 4 and 24 h after surgery. The associations of excessive bleeding with demographic, clinical and genetic factors were analized. We used SPSS-12.2 for statistical purposes.
Results: The incidence of excessive bleeding was 50%. Lesser Body Mass Index was associated with excessive bleeding ($P = 0.026$). Preoperative levels of leptins (P 0.059) and plasminogen activator inhibitor gene (PAI-1) (P 0.014) were predictors for excessive bleeding. Lesser temperature during CPB ($P = 0.037$) and at Intensive Care Unit admission ($P = 0.029$) were associated with excessive bleeding. We found a greater activation at admission of C1q (p 0.019), C1-inhibitor (P 0.029), B Factor (P 0.005), C7 (P 0.005), with lesser levels of plasminogen activator inhibitor gene (PAI-1) (P 0.001), prothrombine time (P 0.039) and leptines (P 0.014); in those patients who had excessive bleeding. In the same patients, we found at 4 h lesser levels of C1q ($P = 0.004$), C1 inh. (P 0.046); C3 (P 0.010); B Factor (P 0.016); C7 (P 0.004); prothrombine time ($P = 0.034$) and leptines ($P = 0.004$). In addition lesser levels at 24 h of C1q (P 0.039) and leptines ($P = 0.005$) were found in patients with excessive bleeding. These patients showed an hyperdinamic state and greater transfusion requirements were needed.
Conclusion: The incidence of excessive bleeding was 50%; coagulation, fibrinolysis, complement and inflammation parameters were involved.

C14 - 4

RE-EVALUATION OF PREVENTING RADIOCONTRAST-INDUCED NEPHROPATHY BY N-ACETYLCYSTEINE (NAC) – A META-ANALYSIS

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Objective: Clinical trials evaluating N-acetylcysteine (NAC) for the prevention of radiocontrastinduced nephropathy have reported mixed results. Despite formerly published meta-analyses and due to currently published randomized centrolled trails (RCTs), time has come to re-evaluate the current evidence of preventing RCN by administering NAC.
Methods: We performed a computerized search to identify relevant published randomized clinical trials that evaluated N-acetylcysteine for the prevention of radiocontrast-induced nephropathy. Abstracted data from each trial included assessments of clinical outcomes, trial quality, and additional characteristics. The primary outcome of interest was the incidence of nephropathy after contrast administration. Data were combined using random effects models with the performance of standard tests to assess for heterogeneity and publication bias. Subgroup analyses were also performed.

Results: Twenty-eight trials involving 3604 patients met our inclusion criteria. Trials varied in patient demographic characteristics, inclusion criteria, dosing regimens, and trial quality. The summary risk ratio for contrast-related nephropathy was 0.69 (95% confidence interval: 0.57 to 0.82; P = 0.02), a statistically significant trend towards benefit in patients treated with N-acetylcysteine. This effect varied, however, across the 28 trials, and only eight of the 28 trials demonstrated significant results Although higher-quality trials demonstrated a stronger benefit for N-acetylcysteine in general, few reported important elements of study design, such as concealment of allocation, placebo-controls, or double-blinding. Heterogeneity was unexplained by subgroup analyses.
Conclusion: N-acetylcysteine (NAC) may reduce the incidence of contrast-related nephropathy, but this finding is reported inconsistently across currently available trials. High-quality, large clinical trials are needed before N-acetylcysteine use in this indication can be recommended universally.

C14 - 5
INTRA AORTIC BALLOON PUMP USE AMONG FEMALE AND MALE IN CARDIAC SURGERY - RETROSPECTIVE ANALYSIS
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Objective: Intra-aortic balloon pump (IABP) is a well-accepted and widely used mechanical circulatory support in cardiac surgery. In contrast to inotrops, this technique provides physiological assistance to the failing heart by decreasing myocardial oxygen demand. Although it is an invasive technique with several potential complications, it has proven invaluable in improving the results of surgery in high-risk patients.
Methods: Between August 1998 and August 2005, a total of 320 patients undergoing cardiac operation in University Hospital of Wales in Cardiff received IABP, 192 (60%) preoperatively. There were 86 (23.9%) females (Group A) and 234 (76.1%) males (Group B). The preoperative risk factors in both groups were studied and analyzed. Multivariate analyses were performed to identify risk factors for in hospital mortality.
Results: Logistic EuroSCORE was higher in female group 33.6 vs. 27.6 (P = 0.03). There was no difference in Parsonnet score (13.3 vs. 13.3) and additive EuroSCORE (11.2 vs. 10.5) between two groups. There was higher in hospital mortality in group A 34 (39.5%) vs. 65 (27.8%) in group B (P = 0.022). Females were more likely to have good ejection fraction (EF) 31 (36%) vs. 53 (22.7%) (P = 0.03), peripheral vascular disease 6 (7%) vs. 6 (2.6%) (P = 0.03) and permanent pacemaker 6 (7%) vs. 3 (1.3%) (P = 0.003). The indication for IABP use among females was more frequently heamodynamic instability 27 (31.4%) vs. 43 (18.4%) (P = 0.006). Males more frequently had two or more myocardial infarcts in the past 9 (10.5%) vs. 46 (19.6%) (P = 0.027), poor EF 20 (23.3%) vs. 91 (22.7%) (P = 0.005) and had larger BSA 1.69 (SD 0.16) vs. 1.93 (SD 0.17) (P<0.001). Multiple logistic regression analysis revealed gender, age above 80, renal impairment, redo, CHF and IV inotrops prior to anaesthesia as independent risk factors for in hospital mortality.
Conclusion: Our data reveal that female gender is still risk factor in high-risk patients in cardiac surgery. Rest of risk factors found in our study correlate with EuroSCORE and Parsonnet score, however only logistic EuroSCORE was able to predict higher in hospital mortality among females.

C14 - 6
THE COMPARISON ANALYSIS NORMO- AND HYPOTHERMIC PERFUSION DURING OPEN-HEART SURGERY
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Objective: The aim this study was to compare Normothermic and hypothermic regimen of perfusion during open heart surgery.
Methods: Beginning from December 2004 to December 2005 was operated 1258 patients, underwent CABG and Valvular diseases, 378 patients was operated in Normothermic CPB. Mean age was 55.8±10.5 year, BSA 1.92±0.24 m^2, t ºC during CPB - 34.7±1.5 ºC, time of ischemia was 49.8±1.5 min, time CPB - 94±4 min. Control group was 400 hypothermic patients underwent open heart surgery. We use antegrade cardioplegia Custodiol 20ml/kg (ante-retrograde road used in aortic valve disorders, multivalve corrections, and conditions couple with aortic valve abnormalities). Anesthesia was induced with Fentanyl 5 μg kg-1, midazolam 0.2 mg kg-1, Ketamin 2 mg kg-1, Vecuronium 0.03 mg kg-1. For the maintenance of anaesthesia, all patients received a low-flow Isoflurane anaesthesia, a continuous infusion of Fentanyl 5μg kg-1h-1, supplement intermittent boluses of Vecuronium 0.03 mg kg-1; during CPB - a continuous infusion of Fentanyl 5 μg kg-1h-1, 0.2 mg kg-1h-1. We assessed the duration of stay in ICU, time of respiratory support, necessity and duration inotrope therapy, determined the hemodynamic profile, biochemical tests such as intra- and postoperative levels of glucose, lactate, maloune dialdehyde, creatinine, urea, and leukocytes count.
Results: It has been show that in Normothermic group time of stay in ICU department decrease 18.2±1.5 h vs. 23.5±0.8 h (P<0.05); time of respiratory support 780±44 min, vs. 1140±35 min (P<0.05), significantly decreased necessity of inotrope therapy 3% vs. 10% (P<0.05), and it duration: reduced manifestations of systemic inflammatory response, postoperative leukocytes count 8.8±1.2 vs. 14.2±2.3 (P<0.05), lactate level 2.2±0.8 mmol l-1 vs. 4.7±1.8 mmol l-1, rate of renal dysfunctions 2 patients vs. 18 in control group.
Conclusion: The use of normothermia permits to reduced time of respiratory support, time of stay in ICU, to reduced necessity and duration inotrope therapy in postoperative period, to decreased the rate of renal dysfunctions, to decrease the rate of manifestations and heaviness of systemic inflammatory response after CPB, and as a result of that to decrease the cost of treatment of patients underwent cardiac surgery.

C14 - 7
PLATELET FUNCTIONAL RECEPTORS DETERIORATE DURING MILD HYPOTHERMIC CARDIOPULMONARY BYPASS AND DO NOT RECOVER AT 24 H
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Objective: The use of cardiopulmonary bypass (CPB) is associated with coagulation dysfunction and increased risk of postoperative bleeding after cardiac operations. Although coagulation dysfunction after CPB has been intensively investigated, little is known about the fate of functional receptors which reside on the platelet membrane. We evaluated the expression of CD31, CD42b, P-Selectin, CD40L, and CD41 as well as Platelet-Monocyte-Aggregates (PMA) formation on resting and in vitro activated platelets using flow cytometry.
Methods: Whole blood was collected preoperatively, 10 min after CPB initiation, at lowest core temperature, 10 min, 5, and 15 h after protamine administration. A dual stain, no-lyse, no wash method was used to perform flow cytometric measurements on platelets before and after in vitro activation with TRAP-6. All results are expressed as mean fluorescence, or mean fluorescence difference before and after activation. PMAs are expressed as percentage of platelet positive monocytes in the whole monocyte population.
Results: Compared to the baseline CD31 and CD42b expression on platelets is downregulated during CPB (163±34 vs. 150±30 and 194±34 vs. 162±44 respectively, P>0.01). This fact is not detectable any more after protamine administration. Accordingly CD31 and CD42b receptor intrernalization after in vitro activation are reversibly impaired during CPB (-6.4±7.1 vs. -2.9±5.8 and -5.1±13.1 vs. +7.4±15.6, P>0.001), however normal values are restored postoperatively. P-Selectin expression on resting platelets diminishes during extracorporeal circulation and restores after heparin reversion. Interestingly the ability of platelets to be activated in vitro is also reduced during CPB (76±27 vs. 54±20.9, P = 0.009), restores thereafter (78±31) and drops again 15 h after protamine administration (61±32) concomittant to a rebound-increase of P-selectin on resting platelets (4.2±0.4 vs. 6.1±0.7, P = 0.012). PMA formation is increased 10 min after CPB-start, followed by a remarkable drop lasting till the 5th postopeative hour (85%±20 vs. 50%±17, P = 0.004). The ability of platelets to form aggregates with monocytes begins to normalize on the first postoperative day 67.5±16.1%).
Conclusion: Native platelet activation as well as the ability of platelets to be activated in vitro are supressed during extracorporeal circulation. Platelet dysfunction including deteriorated plateletplatelet and platelet-monocytes interactions can be detected even during the first postoperative day. This effect may account for late-onset postoperative bleeding after cardiac surgery.

C14 - 8

PREOPERATIVE METHYLENE BLUE ADMINISTRATION IN PATIENTS AT HIGH RISK FOR VASOPLEGIC SYNDROME DURING CARDIAC SURGERY

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Objective: Angiotensin-converting enzyme inhibitors, calcium channel blockers, and preoperative intravenous heparin use are independent risk factors for vasoplegic syndrome after cardiac surgery. We prospectively studied whether preoperative methylene blue administration would prevent the vasoplegic syndrome in these high-risk patients.
Methods: One hundred patients scheduled for coronary artery bypass graft surgery who were at high risk for vasoplegia because they were preoperatively using angiotensin-converting enzyme inhibitors, calcium channel blockers, and heparin were randomly assigned to either receive preoperative methylene blue (group 1, n = 50) or not receive it (group 2, controls, n = 50). Methylene blue (1% solution) was administered intravenously at a dose of 2 mg/kg for more than 30 min, beginning in the intensive care unit 1 hour before surgery.
Results: Although similar in terms of all demographic and operative variables, the two groups differed significantly in terms of vasoplegic syndrome incidence (0% in group 1[0 of 50] vs. 26% in group 2 [13 of 50]; $P < 0.001$). In 6 patients, the vasoplegic syndrome was refractory to norepinephrine. Four of these patients survived; the other 2 had vasoplegic syndromes that were refractory to aggressive vasopressor therapy, and they ultimately died of multiorgan failure. Stroke occurred in 1 patient. The two study groups also differed significantly in terms of average intensive care unit stay (1.2±0.5 days in group 1 vs. 2.1±1.2 days in group 2; $P<0.001$) and average hospital stay (6.1±1.7 days in group 1 vs. 8.4±2.0 days in group 2; $P<0.001$).
Conclusion: Our results suggest that preoperative methylene blue administration reduces the incidence and severity of vasoplegic syndrome in high-risk patients, thus ensuring adequate systemic vascular resistance in both operative and postoperative periods and shortening both intensive care unit and hospital stays.

C14 - 9

TRANEXAMIC ACID REDUCE THE INFLAMMATORY RESPONSE TO CPB. PROSPECTIVE RANDOMIZED DOUBLE BLIND STUDY

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Objective: Previously in a cohort study we had observed that tranexamic acid (TA) administrated on cardiopulmonary by-pass (EPD) reduce postoperative bleeding and the systemic inflammatory response syndrome (SIRS) after CPB. To confirm the protective effect of the TA on SIRS prevention.
Methods: Prospective, randomized, double blind placebo controlled study on 50 adults patients (27 male) under CPB, 64.5±1.4 year mean age, which receive TA (2 grs, iv, before and after CPB) or saline solution. The Pearson's chi^2 test and Fisher's exact test were used. The Student's *t* test was performed in independent groups. To compare the sequential changes along the time we applied the Manova test.
Results: The SIRS incidence after CPB was 17% on TA group vs. 42% in control group (p 0.048). Vasodilator shock was more frecuent in SIRS (53% in SIRS vs. 0% in non SIRS; $P<0.0005$), as well as red cell transfussional needs. (P 0.013), frozen plasma transfussional needs (P 0.0014), lactic acid levels after CPB (P 0.028) and IL-6 levels 4 h after CPB (P 0.059).
Conclusion: The use of TA in patients under CPB prevents SIRS in postoperative period. Patients with SIRS develop more morbidity, transfussional requirements and vasoactive drugs use.

C14 - 10

EFFECT OF PRETREATMENT WITH METHYLPREDNISOLONE ON CARDIAC PROTECTION DURING CARDIOPULMONARY BYPASS

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Objective: This study was undertaken to determine whether methylprednisolone could improve myocardial protection by altering the cytokine profile toward the anti-inflammatory course in patients undergoing elective coronary artery bypass grafting surgery (CABG) with cardiopulmonary bypass (CPB).
Methods: Thirty patients scheduled for elective CABG surgery were randomized to receive either 1g of methylprednisolone (study group; $n = 15$) or isotonic sodium chloride solution (control group; $n = 15$) intravenously before CPB. Standard anesthesia, CPB and CABG protocols were applied for all patients. Blood samples were withdrawn prior to surgery (T1), 10 min (T2), 4 (T3) and 24 h (T4) after CPB. Levels of IL-6 and IL-10 were measured. Plasma levels of creatine kinase MB (CKMB), troponin-t and neutrophil counts were also measured at each sampling time. Fisher's exact test was applied to categorical data. Student's *t* test was used to analyze the demographic and clinical characteristics of patients and appropriate perioperative data. Time-dependent variations of biological variables were analyzed by the Wilcoxon test and intergroup comparison at specific sample times by Mann-Whitney U-test. A P value less than 0.05 was considered significant.
Results: There was no significant difference between both groups in terms of demographic and clinical data. Comparison of patients within study and control groups revealed significantly elevated levels of IL-6 at T2, T3 and T4 and significantly elevated levels of IL-10 at T2. Comparison of patients between both groups revealed significantly high levels of IL-6 in control group at T3 and T4 (T3: $P = 0.005$; T4: $P = 0.046$). IL-10 levels were significantly high in study group at T2 in respect to study group (T2: $P = 0.014$). Neutrophyl count was high in study group at T2, T3 and T4 (T2: $P = 0.001$; T3: $P = 0.017$; T4: $P = 0.001$). CK-MB levels were significantly low in study group at T4 ($P<0.01$). Increase of troponin-t was high in control group at T3 and T4 in contrast to study group (T3: $P = 0.001$; T4: $P = 0.05$).
Conclusion: The systemic inflammatory response after cardiopulmonary bypass is a significant cause of morbidity and an occasional cause of mortality in cardiac surgery. This study demonstrates that methylprednisolone is highly affective for ensuring a better myocardial protection in cardiac surgery by suppressing inflammatory response. We believe administration of steroids prior to cardiac operations is highly effective for decreasing postoperative mortality and morbidity.

C14 - 11

OPEN LUNG BIOPSY – A SAFE BEDSIDE PROCEDURE WITH A HIGH DIAGNOSTIC YIELD IN CRITICALLY ILL PATIENTS

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Objective: We set out to evaluate the safety, diagnostic yield and therapeutic impact of Open Lung Biopsies (OLB) performed in mechanically ventilated adult patients.
Methods: A retrospective review of patient records was conducted on all patients who underwent an OLB over a 7-year period (1996–2003) in a 32-bed adult critical care unit in a tertiary care, universityaffiliated teaching hospital. 13 mechanically ventilated patients with undiagnosed bilateral pulmonary infiltrates who failed to respond to first line therapy underwent an OLB via an anterior minithoracotomy.
Results: OLB provided a diagnosis in 12 out of 13 patients (92%). AGE APACHE II scoreICU stay (days)Ventilation (days) 48.7 20.1 17.3 15.7 (All values in table are mean values) In all 12 patients, the OLB results led to implementation of specific treatment changes. There were no procedure related mortalities. The overall mortality in the group was 53.8%, a reflection of the critically ill nature of these patients. Two patients underwent transient desaturation and hypotension intra-operatively and there was a minor haemorrhage at the site of the chest drain in one patient.
Conclusion: OLB is an accurate diagnostic tool, with an acceptable associated morbidity, in critically ill patients with diffuse pulmonary disease. OLB should be considered when conventional methods have failed to provide a definitive diagnosis to help redirect therapy.

C14 - 12

HEART IN DIABETES - WHICH PARAMETERS ARE CHANGED?

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Objective: Diabetes mellitus is a frequent comorbidity that complicates the perioperative course of cardiac surgical patients. The objective of the study was to compare the basic hemodynamic parameters in normal and diabetic rat hearts in an isolated working heart model.

Methods: Twelve adult male rats were randomly divided into two groups. The first group received 60 mg/kg b.w. streptozocin intraperitoneally (n = 6); the second group (n = 6) received no treatment and served as the control. After 7 weeks of observation of the glycaemia and body weight the animals were heparinized, anaesthetized and hearts were harvested for hemodynamic study. Hearts of both groups were perfused in working heart mode with modified normoglycaemic Krebs-Henseleit solution. Preload was 12 mmHg and afterload 70 mmHg. After 5 min of stabilization two 5 m-periods of data collection were analyzed. Every 2 s the following parameters were measured or calculated and stored: aortic pressure (expressed as a minimal, mean, maximal), coronary flow (mean), aortic flow (mean), heart rate, coronary resistance, cardiac output, left ventricle stroke volume.
Results: Analysis conducted with statistical tools (t-student test for independent samples after normal data distribution was confirmed) revealed significant differences in the following parameters between the groups. Most parameters were significantly higher in the diabetic group: mean aortic flow (P<0.000001), aortic pressure maximal (P = 0.02), aortic pressure mean (P<0.000001), aortic pressure minimal (P<0.000001), cardiac output (P = 0.0005), LV stroke volume (P<0.000001). There was no difference in coronary resistance between the groups (P = 0.57), but mean coronary flow was lower in the diabetic group (P<0.000001), as well as heart rate (P<0.000001).
Conclusion: Diabetic rat hearts when perfused with normoglycaemic, crystalloid solution presented significantly lower heart rate and coronary flow when compared to normal animals, although most of the main heart parameters were significantly better than in the control group. Accordingly, treatment focused on improvement of coronary flow and heart rate can be of special benefit in the group of diabetic patients.

C14 - 13

MID-TERM ANGIOGRAPHIC COMPARISON OF SEQUENTIAL AND INDIVIDUAL ANASTOMOSIS TECHNIQUES FOR DIAGONAL ARTERY

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Objective: The mid-term patency rates for individual and sequential grafts as coronary bypass conduits for diagonal arteries were angiographically compared; the impact of native coronary vessel and type of the conduit characteristics were investigated.
Methods: Between March 1992 and April 2000, we performed a total number of 693 distal anastomosis on diagonal arteries of Left Anterior Descending (LAD) artery in 296 patients who underwent coronary artery bypass surgery in our clinic. The patients were divided into two groups in this prospective study. In group A individual anastomosis technique, in group B sequential anastomosis technique was choosen as the myocardial revascularization strategy. At an average of 57.3±18.2 months after coronary revascularization procedure, coronary angiographies were performed and evaluated. Individual and sequential grafting techniques were compared due to graft patency rates.
Results: The patency rates of sequential conduits were markedly higher than those of individual ones (66.7% vs. 89.2%, P = 0.0001). This difference was also clear in coronary arteries with poor quality and small (<1.5 mm) diameter (49.1% vs. 66.6%, P = 0.032). Also, the patency rates of sequential radial artery conduits were higher than sequential saphenous vein graft conduits(sequential radial artery; 94.1%, sequential saphenous vein graft(SVG); 85.3%, P = 0.043).
Conclusion: Sequential grafting for diagonal artery is technically more demanding but the mid-term results are better than individual grafting especially in coronary arteries with poor quality. Using radial artery as a sequential graft increases the mid-term graft patency rates.

C14 - 14

OUTCOMES OF SURGICAL MYOCARDIAL REVASCULARIZATION IN PATIENTS WITH ISCHEMIC CARDIOMYOPATHY

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Objective: Many studies show that patients with ischemic cardiomyopathy may improve myocardial function and prognosis following revascularization. At the same time such patients are usually reported to carry a higher risk of postoperative complications and mortality after bypass surgery. We analyzed early and late outcomes of coronary artery bypass grafting (CABG) in patients with ischemic cardiomyopathy.
Methods: Our study included 48 patients with ischemic cardiomyopathy operated on from January 2003 to January 2005. All patients were of male sex, the age averaged 56.5±8.9 years, preoperative left ventricular ejection fraction (LVEF) - 28.6±5.4%. Primary evaluation of the functional status showed that all patients related to the III and IV NYHA class and to the III-IV class according the Canadian Cardiovascular Society (CCS) classification (for angina pectoris). Square of the hibernating (viable) myocardium assessed by myocardial scintigraphy with 99Tc and Iodopent (123I) was less 5% in 11 cases (23%), 6-17% in 22 cases (46%) and more then 18% in 15 cases (31%). All patients underwent CABG with the cardiopulmonary bypass.
Results: Hospital mortality was 4.2%. Twelve months after revascularization we found the improvement of LVEF up to 35.9±3.7%, of the NYHA class to I-II and of the CCS score to 0-I in all cases. In 42 patients (87%) was found perfusion defect size reduction during secondary myocardial scintigraphy one year after surgery.
Conclusion: Surgical myocardial revascularization in patients with ischemic cardiomyopathy results in improvement of viable myocardium function and reduction of heart failure as well as removal of angina pectoris.

C14 - 15

MYOCARDIAL PROTECTION IN PATIENTS WITH RECURRENT HIGH ISCHEMIC STRESS

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Objective: Sometimes patients' cardiac diseases require more than one period of aortic X-clamping, particularly in patients (pts) with HOCM or reconstructive valve procedures, if the first operative attempt has failed. These cases pose a challenge to myocardial protection. Therefore we have retrospectively analyzed this subgroup to evaluate the efficiency of the Bretschneider method (histidine buffered solution).
Methods: In all pts (n = 60) histidine buffered Bretschneider solution (CUSTODIOL) was administered for cardioplegia. There were 25 male and 35 female pts. Most of them suffered from single valve or multivalvular diseases, while 11 pts had an HOCM and 1 pt. had an acute aortic dissection. Cardioplegia was given for more than 8 min in all pts before onset of the first and second ischemic period. Cardioplegic reperfusions were necessary in 15% during the first ischemia, while during 2. ischemia no cardioplegic reperfusion was performed. Time interval between 1. and 2. ischemia was 57 min in the survival group and 97 in the lethal group (P<0.0009).
Results: Indications for 2. ischemia were transvalvular pressure gradients being inacceptably high (43%), insufficient valvular repair (42%) and severe bleedings (15%). X-clamping time lasted for 74 min during 1. ischemia and 63 min during 2. ischemia. There were 8 pts who died, but in only 3 pts (5%) a LOS occured. Follow-up examinations were performed after 24 months post-op (mean). In nearly 70% clinical status was excellent or good. An extended time interval between ischemia 1 and 2, as in the lethal group, seems to be disadvantageous and should be avoided.
Conclusion: The efficiency of the Bretschenider method has been impressively demonstrated in this special patient subgroup, since LOS happened in only few cases. So protective properties and simplicity of application - no mandatory cardioplegic reperfusion! - of this method have been proven not only at high ischemic stress but also in single operations with recurrent ischemia.

C14 - 16

MINI-THORACOTOMICAL APPROACH FOR AORTIC VALVE REPLACEMENT: PRELIMINARY RESULTS

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Objective: To assess the feasibility of a new minimally invasive approach for aortic valve replacement.
Methods: Since January 2005, 8 patients with aortic valve disease not amenable of repair underwent aortic valve replacement through a right mini-thoracotomy. The incision was located in the second right intercostal space, with detachment of the third rib cartilage and sparing of the right internal mammary artery. Extracorporeal circulation was established by means of a double femoral cannulation (artery and vein). Aortic cross clamping was accomplished with the use of a standard clamp.

Results: There were 5 male and 3 female. Mean age was 69.6 years ±8.6. A biological valve prosthesis was implanted in 7 patients, with a mean diameter of 22.3 mm ±1.0. All except one patient had ejection fraction greater than 50%. Mean extracorporeal circulatory time was 74.6 min ±11.2, and mean clamping time was 58.1 min±10.0. No hospital death occurred. Mean hospital stay was 4.6 days±0.5. One procedure (12.5%) had to be converted in usual sternotomy due to calcifications of the ascending aorta which prevented the correct positioning of the aortic clamp.
Conclusion: The procedure demonstrated to be feasible, with good surgical and aesthetic results. Preoperative evaluation of calcifications of the aortic wall with CT-scan is recommended.

C14 - 17
INITIAL EXPERIENCE OF COMBINED APPROACH FOR THE TREATMENT OF THE END STAGE OF ISCHEMIC CARDIOMYOPATHY
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Objective: To evaluate the safety and efficacy of combined treatment for ischemic cardiomyopathy, consisting of 1)revascularization of ischemic areas off - pump 2) external reshaping of the left ventricle in order to restore LV geometry and 3) autologous stem cell injection into the myocardium.
Methods: Between July and October 2005, 5 patients (mean age 59.1 years) underwent coronary bypass using the ?-circuit technique and external reshaping of the left ventricle under offpump conditions. Autologous bone marrow (300ml) was obtained by bilateral posterior iliac bone aspiration at the time of surgery. Bone marrow mononuclear cells were isolated by means of a density Ficoll - Paque gradient. Then the cells were exhaustively washed and re - suspended in a normal saline solution containing 5% human serum albumin. Cell count, viability and cultures were appropriately performed. Following the operation the bone marrow mononuclear cells (30 ml) were injected directly to the myocardium of the left ventricle. Preop IABP was used in all patients.
Results: No significant complications were observed. The left ventricular ejection fraction at rest was improved significantly in all patients from 20.2±5 to 29.6±4, three months following the operation. Furthermore, we observed significant reduction of the end diastolic volume of the left ventricle and improvement of motions in all walls. In a follow up period of 3-6 months all patients are alive and the benefit of the operation is maintained.
Conclusion: The combination of off-pump myocardial revascularization, reshaping of the left ventricle and injection of un-manipulated autologous bone marrow into scar tissue of the human heart is safe and effective in enhancing cardiac function in ischemic cardiomyopathy.

C14 - 18
SURVIVAL AND COMPLICATION RATE AFTER LONG-TERM FOLLOW-UP OF ICD IMPLANTATION
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Objective: Purpose of the study was to analyze efficacy of ICD during long-term follow-up, to estimate survival of patients with ICD, to evaluate complications rate in early and late postoperative periods.
Methods: 214 ICDs (132 single-chamber, 74 dual-chamber and 8 triple-chamber) were implanted in Bakoulev Center for Cardiovascular Surgery from February 1990 to October 2005. Primary implantations were performed in 154 patients, in 60 cases ICDs were replaced due to battery depletion.
Results: We evaluated long-term results of 205 III to V generation ICD implantations in 145 patients (111 males, 34 females, mean age 49.0±14.7 years, range 14-78 years). Mean follow-up period was 31.8±30.2 months, range 1-131 months. During this period 88 patients had ICD discharges, time from implantation to first discharge ranging 0.5-70 months. Multifactorial analysis revealed that left ventricular ejection fraction (LVEF) was the only variable influencing the rate of ICD discharges. The mean LVEF was 41.3±16.8% among patients who have already had at least one ICD discharge as opposed to mean LVEF of 57.4±15.7% among those who have not had any (P<0.03). Moreover, LVEF appears to be the most important prognostic factor for patient survival, which was 62% in the group of patients with LVEF <40% and 93% in the group of patients with LVEF>40% (P<0.0001). Total cumulative proportional survival (Kaplan-Meier) was 79%. Multi-chamber ICDs were shown to improve not only LV pumping function and quality of life (LVEF increasing from 37.3±10.1% to 45.0±10.9%, NYHA class changing from 2.87±1.01 to 2.12±0.64) but patient survival as well. Patient survival was 94% among patients with multi-chamber ICD and 67% among those with singlechamber ICD (P<0.001). No intraoperative complications were observed. There was no statistically significant difference for late surgical complications rate between patients with single-chamber and dual-chamber ICDs. Incidence of unmotivated discharges with single-chamber devices was twice as high as with multy-chamber devices.
Conclusion: LVEF and the type of device (single-chamber vs. multi-chamber) are two most significant factors influencing patient survival and quality of life.

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COMBINATION OF SURGICAL AND MEDICAL TREATMENT IN NATIVE VALVE BRUCELLA ENDOCARDITIS
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Objective: Although it is rare, endocarditis is the most fatal complication of brucellosis. The treatment of brucella endocarditis is still controversial.
Methods: Between 1989 and 2005 sixteen patients diagnosed as brucella endocarditis were operated in our clinic. There were 10 male and 6 female patients ranging between 19 and 68 years. In thirteen patients aortic valve was involved, whereas mitral valve endocarditis was present in three patients. Brucella antibody titres were more than 160 in all patients. Preoperative blood cultures were positive only in thirteen patients, but remaining three has positive operative blood cultures. Echocardiographic evaluation demonstrated significant vegetations in twelve patients, and aortic abscess in 5. All the patients were NYHA III or IV. Twelve patients received Rifampycin, Streptomycin and Doxycyclin, whereas 4 received Rifampycin, Doxycyclin and Co-trimaxazole combination with a mean duration of 14±6 days.
Results: Aggressive derbridment and prosthetic valve replacement was performed in all patients after adequate medical treatment. A patient died at the end of first postoperative week because of stroke. All the patients were asymptomatic at discharge. The antibacterial treatment was continued for six months postoperatively. The blood cultures and serologic tests were negative in the follow ups done in every 6 months and all the patients were NYHA Class I or II. The mean duration of follow up was 51±21 months.
Conclusion: Surgical treatment combined with pre and postoperative antibacterial treatment is life saving in brucella endocarditis.

C14 - 20
SURGICAL CORRECTION OF OBSTRUCTIVE FAMILIAL HYPERTROPHIC CARDIOMYOPATHY
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Objective: HOCM is genetically and clinically heterogeneous myocardial disease. An important clinical predictor of premature death is malignant family history. We studied a severe case of HOCM by searching for mutations in b-cardiac myosin heavy chain gene (MYH7) as a candidate. A missense mutation in codon 606 of MYH7 was identified as cause in a nuclear family with a malignant history (mother and son were affected). Surgical correction of LV obstruction (LVOT and mid-cavity) was approached by myectomy from the right side of the IVS. This is an alternative to the Morrow technique which does not allow to perform left-ventricular resection of mid-ventricular parts of the septum in HOCM patients with severe hypertrophy.
Methods: We present a method of excising severely hypertrophied IVS tissue causing obstruction of LVOT and the left mid-ventricular cavity by applying right- rather than left-ventricular myectomy. Access to the septum was through longitudinal incision of the RV conal part. Myectomy was performed by partial removal of hypertrophic tissue anterior to the Lancisi muscle. Both seriously affected carriers of the codon 606 mutation in MYH7 were treated this way.
Results: Follow-up studies in these 2 patients were done for 17 (mother) and 12 (son) months. The mean echocardiographic intraventricular gradient in the left ventricles after surgery decreased from 81/95 to 7/12 mmHg (mother and son, resp.). Septal thickness (by echocardiography) was reduced from 31/33 to 16/18 mm (mother and son, resp.). Follow-up echocardiography showed further a marked reduction of left atrial size. An increase in LV and RV filling fraction was shown by magnetic resonance imaging. Both patients were in sinus rhythm.

Conclusion: RV myectomy of the IVS is an effective technique for surgical treatment of familial HOCM in cases of massive left ventricular hypertrophy which includes obstruction of the mid-cavity in addition to the outflow tract.

C14 - 21

PREDICTION OF POSTOPERATIVE REMODELING OF LV IN PATIENTS WITH CARDIOMYOPATHY

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Objective: The aim of our work is to study initial morphological and morphometrical values of myocardium of left ventricle (LV) and the right atrium (RA) auricle in 40 patients with ischemic cardiomyopathy in connection with follow-up results of surgical treatment. 10 of the patients were performed CABG, in the rest 30 patients there was performed surgical repair LV combined with CABG.
Methods: Electron-microscopics and histological methods of study were used at work. To reveal the risk factors of post-operative heart remodeling we offer to use the following morphometrical parameters: parenchymal-stromal ratio, trophic index, zone of pericapillar diffusion, Kernogan index and mitochondrial-myofibrillar ratio.
Results: In the early post-operative period all the patients had significantly increased LV EF (from37.5±4.3% to 45.1±4.8%); decreased LVEDV (from 210.9±32.8 ml to 142.3±27.6 ml (P<0.05)). In the long-term period all the patients were spontaneously divided into two groups. Thirty-one patients (the 1st group) had satisfactory volume of cavity and contractile myocardium func-tion. In 9 patients (the 2nd group) significant decrease of LVEF to 38.8±4.8% due to EDVLV in-crease to 217.5±37.8 ml (P<0.05) was noticed whereas before this period signs of myocarditis, severe fibrosis (parenchymal-stromal ratio <1.5), trophic index <0.010, zone of pericapillar diffusion >1000 mkm and Kernogan index >1.6 were observed in these patients. In 17 patients from the Ist group (55%) and in all patients from the IInd group there was found mixed infiltration (lym-phocyte-macrophage), number of cells in which denoted myocarditis. In 50% of cases infiltration were of diffusive nature, rarely - focal or confluent. Moreover, identical nature of infiltration in myocardium of RA auricle was noticed in 7 patients from the Ist group (23%) and in 6 from the IInd (67%). Electron-microscopics study showed signs of regenerative - plastic insufficiency of cardiomyo-cytes of both LV myocardium and RA auricle, such as: myophibrilles “melting” at no restoration in proper size, exposure of perinuclear space, impairment of newly formed myophibrilles normal orientation, their redundant length growth. Noticed multiple contractures of myophibrilles, their primary clump disintegration denoted permanent alternative processes taking place.
Conclusion: The presence of inflammatory infiltration of myocardial stroma combined with evident fibrosis, low trophic index and high volumes of pericapillar diffusion zone, mitochondrial-myofibrillar ratio and Kernogan index in patients with ischemic cardiomyopathy are pathomorphological predictors of post-operative heart remodeling. Ultrastructural study revealed mixed, alterative and regenerative-plastic insufficiency of LV and RA auricle myocardium cardiomyocytes in patients with ischemic cardiomyopathy, which is a substrate of progressing heart dilatation and insufficiency.

C14 - 22

SUBSTANTIATION OF CHOICE FOR ASD REPAIR DEPENDING ON BIOMECHANICAL PROPERTIES

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Objective: Well known fact the first phase of choice for ASD or Opened Foramen Ovale (OFV) repair is biomechanical investigation of atrium septum, and on obtained results projection and application of functional and compatible methods of defect occlusion. The variety of techniques for ASD repair - suturing, auto-, xeno- and alloplastic, endovascular occlusion depends on objective and subjective views. But no biomechanical investigation is taken in account: the size and shape of ASD. We supposed the relapses occur because of absence of biomechanical investigation.
Methods: We investigated tension and deforming state of atrial septum in normal septum and after secondary ASD. The mathematic modeling was the base of analysis - tensile Mesise epurs and dislocation epurs. The size of secondary ASD varies from 7% (1st group), 33% (2nd group) up to 56% (3rd group). All defects were at the upper part of fossa ovalis. On the base of biomechanical analysis of atrial septum in ASD we compared: 1. Manual suturing; 2. Prosthesis; 3 Amplatzer septal occluder.
Results: In normal state when fossa ovale fully closed - the tension in central area is about 82.5 kPa and dislocation 3.45 mm, at the periphery these parameters were less by 27%. In the 1st group tension reached 119.2 kPa in two points of membrane fixation to atrial septum, the rest part of membrane had tension less in two times, dislocation decreased on 10% in comparison with norm (results of dislocation in other groups: in 2nd group 10% less and in third group 20% less). In 2nd group tension in contact of membrane and edge of aperture had max level 167.8 kPa and at contact of membrane with atrial septum 100 kPa. In 3rd group tension has decreased a little bit.
Conclusion: Thus parameters of tension and deforming state of atrial septum in norm an ASD varies in different parts of membrane. When suturing ASD the tension is max in needle penetrating points, thus predisposing to relapse. Implant fixation edge to edge restore normal condition of fossa ovalis and ASD, but tension still high in needle penetrating points. Implant fixation with overlap decrease tension and displacement at penetrating points, thus increasing distance from edge of fossa ovalis. Amplatzer septal occluder provides adequate repair of ASD if biomechanical parameters are taken in account.

C14 - 23

HEREDITARY HEART DISEASE (HHD) IN CHILDREN: DIAGNOSTICS, POSTOPERATIVE CARE

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Objective: Congenital heart disease (CHD) may occur alone or associated with multiple congenital defects. In CHD, which are caused by genetic syndromes, specific pathologic conditions may appear. Our study is to define useful management in children with congenital heart disease associated with genetic syndromes.
Methods: This work took place in 1998 till 2000. Total number of patients - 2907: children with CHD under 3-years-old. We revealed 354 patients with HHD: 41.6% - with chromosomal abnormalities, such as aneuploedy (32.4%), including Down syndrome (27.5%) and chromosomal structure reconstructions (9.1%), incl. CATH 22 (4.2%). Nonchromosomal syndromes were presented by monogene syndromes (13.7%), unidentified syndromes (5.7%) and teratogenious syndromes (3%). In 35.9% HHD was not clear. Preoperative mortality in group with associated anomalies was 18.7%, and in group with CHD only - 1.1%, in average age - 49 days. 58.1% of infants died in neonate period. Autopsy showed congenital disorders in 87.7% of cases: renal - 32.7%, lung - 20.4%, intestine - 10.2%, liver - 6.1%. Thymus was under 40% from normal weight. In viral examination of heart, lung, cerebral tissues in 63.6% Coxakky B was found, in 36.4% - in association with herpes simplex virus, CMV, only in 27.3% the virus was not identified. We saw bacterial infection niduses in 80%.
Results: We compared postoperative period in both groups. In groupe with HHD complication (infections, electrolyte disturbance, heart failure, arrhythmias, mortality) were frequent after open heart operation. Mechanical ventilation period and total time in clinic were also longer in this group. For examination period 11 infants with CATCH 22 have undergo heart operations. Postoperative period was complicated with infection in 8 cases, hypocalcaemia in 5, arrhythmias in 9, convulsions in 2, aspiration in 4 patients. Five infants were dead after operation.
Conclusion: HHD frequency accounts 12.9% in infants with CHD. Perioperative mortality and specific complications in HHD group are high and do not correlate with CHD. Genetic abnormalities needed to be identified before heart surgery. As a result of this study we propose classification of HHD.

C14 - 24

PERIVASCULAR APPLICATION OF AZATHIOPRIN REDUCES NEOINTIMAL HYPERPLASIA IN EXPERIMENTAL VEIN GRAFTS

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Objective: Azathioprine is an immunosuppressive and anti-inflammatory drug and it has been shown to induce apoptosis in human T lymphocytes. We investigated whether local treatment with azathioprine can inhibit neointimal hyperplasia in experimental vein grafts.

Methods: C57BL6J mice underwent interposition of the inferior vena cava from isogenic donor mice into the common carotid artery using a cuff technique. In the treatment group azathioprine was applied perivascularly. The control group did not receive local treatment. Vein grafts were harvested at 1 and 2 weeks postoperatively and underwent morphometric analysis as well as immunohistochemical analysis for apoptosis (TUNEL).
Results: In grafted veins without treatment (controls) neointimal thickness was 10 (6-29) μm, and 12 (8-40) μm at 1, and 2 weeks postoperatively. In azathioprine treated grafts the neointimal thickness was 2 (1-5) μm, and 4 (3-11) μm. This reduction of neointimal thickness was significant at 1 week ($P = 0.001$) and 2 weeks ($P = 0.016$) postoperatively. Azathioprine treated vein grafts showed an increased rate of apoptosis in the vascular wall as compared with controls (593 (26-783) vs. 45 (0-106) apoptotic cells/mm^2 at 1 week, $P = 0.063$, and 656 (327-1270) vs. 19 (0-79) apoptotic cells/mm^2 at 2 weeks, $P = 0.016$).
Conclusion: We conclude that treatment of experimental vein grafts with azathioprine is associated with a reduction of neointimal hyperplasia and an increased apoptosis rate in the vascular wall. These results suggest that azathioprine may be useful for the prevention of vein graft disease after coronary artery bypass grafting (CABG).

C14 - 25

DIRECT DETERMINATION OF PLASMA HEPARIN CONCENTRATION BY ULTRAVIOLET FLUORESCENCE EMISSION SPECTROSCOPY IN CARDIOVASCULAR SURGERY

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Objective: Bleeding complications after cardiovascular operations are frequently generated by problems in perioperative anticoagulation treatment. The standard anticoagulation procedure is the intravenous administration of high molecular weight ("unfractioned") (10-15 kDa) heparin, empirically dosed to patient's body weight. However, the majority of unfractioned heparin preparations in clinical application usually contain varying amounts of low molecular-weight ("fractioned") (2-6 kDa) heparins with longer half-life time than unfractioned heparin. In addition, they cannot sufficiently be identified by routine anticoagulation monitoring methods and reliably neutralized by protamine. With ultraviolet fluorescence emission spectroscopy, we introduce a new method for a direct, selective concentration measurement of different heparins and heparin-protamine complexes in plasma.
Methods: Fluorescence emission characteristics of heparinized human plasma samples containing unfractioned and fractioned heparins were compared by direct excitation with ultraviolet-light (wavelength: 250-300 nm). Interaction with plasma proteins, particularly with serum albumin, was eliminated by previous extraction of the fluorescence spectrum of human serum albumin from heparin. Fluorescence intensity was calibrated to varying heparin concentrations. Binding capacity of unfractioned and fractioned heparins with protamine could be determined by titration. Subsequently, heparin-protamine complexes were sedimented and the supernatant analyzed.
Results: Fluorescence emission spectra of unfractioned heparins showed a maximum of intensity at 420 nm wavelength and spectra of fractioned heparins a flat peak in 350-410 nm range. Both graphs could easily be distinguished from serum albumin which presented a maximum at 335 nm. A linear calibration curve could be obtained between heparin concentrations and fluorescence intensity within 0-100 μg/ml range. By titration of unfractioned heparins with protamine, a rapid formation of a strongly fluorescent heparin-protamine complex was observed, significantly increasing the emission intensity of the solution. In contrast, such a complex was not detectable with fractioned heparins which only led to a slight increase of turbidity. Sedimentation at low g-values was possible for unfractioned heparin-protamine complexes but not for fractioned heparins, making a selective identification of protamine-bound heparin possible. Ultraviolet-fluorescence characteristics of the supernatant after sedimentation process were virtually identical to those before titration with protamine.
Conclusion: Ultraviolet-fluorescence emission spectroscopy allows a reliable identification and quantitative determination of both protamine-bound and free heparin in plasma. Our initial results encourage that, the clinical application of the ultraviolet-emission heparin analyzer would help to perform an exact and appropriate perioperative anticoagulation management, reducing the need for transfusions and supporting cost effectiveness in cardiovascular surgery.

C14 - 26

TEMPORARY CARDIAC ASSIST DEVICES FOR PEDIATRIC POSTCARDIOTOMY SUPPORT: 7 YEARS EXPERIENCE

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Objective: Postcardiotomy cardiac failure often occurs after repair of complex congenital heart defects and frequently requires the use of temporary circulatory assist devices. We report our 7-years institutional experience of the using of intraaortic balloon pump (IABP) and extracorporeal membrane oxygenation (ECMO) in the treatment of postcardiotomy heart failure in children.
Methods: Since 1998 till 2005 IABP was used for circulatory support with postoperative left ventricular failure in 30 patients (age 1 to 13 years, median 4.5 years). The weight of the children ranged from 9 to 35 kg. In all cases IABP was used at the early postoperative period. The pumping module used was the Datascope System 98 XT, modified with a pediatric safety chamber. The volume of intraaortic balloons ranged from 5.0 to 12.0 cc.
During this period 38 children (age 2 days to 7 years, median 7 months) with post-operative biventricular failure required ECMO after repair of complex congenital heart defects. ECMO was used under conditions, when weaning from CPB was impossible, because of total biventricular failure. In all cases ECMO implantation was performed perioperatively through the right atrium and ascending aorta. In all cases we used an ECMO circuit that composed of oxygenator, "Biopump" centrifugal pump and heat exchanger. Hemofiltration was applied to 30 patients.
Results: Duration of IABP therapy ranged from 3 to 45 h. Complications occurred in 2 patients (2 of 30, or 6.6%). Overall survival was 53.3% (16 of 30). Duration of ECMO ranged from 4 to 240 h (median = 76 h). Fifteen patients (15 of 38, or 39.4%) were successfully weaned from ECMO. Of these, only 5 children (5 of 38, or 13.1%) were discharged from hospital. The complications which occurred during ECMO included: profuse bleeding, neurologic injury and multisystem organ dysfunction.
Conclusion: IABP could be a useful means for support children with left ventricular failure. It is very important to use IABP at the proper time, because a delay to use it until cardiac output is critical low - offers the patient no chance for survival. ECMO retains a role in the treatment of children with circulatory failure because of its ability to provide biventricular support. Regardless of the fact that, in our case ECMO was associated with substantial complications and high mortality, none of the five our surviving patients would have survived without ECMO.

C14 - 27

AORTIC TRANSLOCATION AND BIVENTRICULAR OUTFLOW TRACT RECONSTRUCTION FOR COMPLEX TRANSPOSITION: MODIFIED NIKAIDOH PROCEDURE

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Objective: Transposition of the great arteries (TGA) with ventricular septal defect (VSD) and left ventricule outflow tract obstruction (LVOTO) represents 0.67% of all congenital heart defects. The surgical management of this pathology is a real challenge. Since many years Rastelli procedure is the first choice for correction. In 1984, Nikaidoh first described a new surgical approach for the correction of this pathology. This was the aortic translocation without coronary transfer with biventriculer outfow tract reconstuction. Here, we will present a succesful correction of a patient with TGA+VSD+LVOTO using modification of Nikaidoh procedure.
Methods: 3.5-year-old male child cyanosed since birth admitted to our clinic with the diagnosis of TGA-VSD-LVOTO. He had modified BT shunts twice when he was 1 month and 2.5 years of ages. cateterization nad this showed a restrictive VSD with LVOTO and normal coronary arteries. Also the shunt was not working properly. cateterization nad this showed a restrictive VSD with LVOTO and normal coronary arteries. Also the shunt was not working properly. cateterization nad this showed a restrictive VSD with LVOTO and normal coronary arteries. Also the shunt was not working properly. Detailed cardiac catheterization showed TGA, restrictive VSD with LVOTO and normal coronary arteries. Also the shunt was partially occluded. Surgical correction of the pathology was planned and aortic translocation and biventricular

outflow tract reconstruction was performed in the way of a kind of Nikaidoh procedure modification.
Results: Postoperative course was uneventful and discharged without any problem. Control echocardiograpy showed no gradient between outflow tracts with only mild mitral regurgitation. One year follow up of the patient did not reveal any significant cardiovascular compromise.
Conclusion: Aortic translocation and biventriculer outflow tract reconstruction results with an exact anatomic correction for the patients who have TGA-VSD and LVOTO. The left ventricule-aorta and RV-Pulmonary artery alignity supply promising cardiac performance. Although still most surgeons prefer Rastelli procedures in this pathology, patients with challenging anatomies like restrictive, inlet or straddling AV valve may be corrected by Nikaidoh operation and its modifications.

C14 - 28
THIRD LEFT PULMONARY VEIN WITH ABNORMAL RETURN ASSOCIATED WITH ARTERIOVENOUS FISTULA
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Objective: Anomalies of pulmonary veins are uncommon and vary widely in their anatomic spectrum and clinical presentation. The prevalence of third pulmonary on either the right or left side is 1.6% to 2% (1). Fourth or even a fifth vein infrequently is present. We presented a case who has third left pulmonary vein with abnormal return and associated arteriovenous fistula.
Methods: A 20-year-old woman was admitted to our clinic with dyspnea and easy fatigability. Physical examination revealed a systolic murmur with a widely split, fixed second heart sound. Mild cardiomegaly was seen on the chest X-ray. Transthoracic echocardiography showed a moderate size (12 mm) secundum atrial septal defect (ASD) and a left vertical vein (LVV) connected to the innominate vein. Multislice computed tomography demonstrated a left vertical vein between the left branch pulmonary vessels and innominate vein. Cardiac catheterization confirmed a moderate size ASD and but showed normal pulmonary venous return. Whereby on selective distal left pulmonary artery injection, partial opacification was seen at the early and late phases in the LVV. At the operation normal pulmonary venous return was confirmed. LVV originating from the upper lobe of the left lung and connected to the innominate vein containing oxygenated blood was visualized.
Results: Complete surgical repair was performed by ASD closure with a pericardial patch and triple ligation of the LVV and associated third pulmonary vein. Patient was discharged on the 7th postoperative day without any problem.
Conclusion: Partial anomalous pulmonary venous return is a congenital anomaly in which one or more, but not all, of the pulmonary veins are connected to a systemic vein, the coronary sinus, or the right atrium directly. Partial anomalous pulmonary venous connections exhibit a wide anatomic spectrum. Left side pulmonary veins usually connect anomalously to derivatives of the left cardinal system (i.e., the coronary sinus and the left innominate vein). The veins from the left upper lobe or from the whole left lung connect to the LVV via a persistent early embryonic pathway, which has been termed a vertical vein. An ASD of the secundum type is usual. Due to the partial opacification seen at the early and late phase in the LVV after a selective distal left pulmonary artery injection, presence of pulmonary arteriovenous fistula is considered. To the best of our knowledge; third left pulmonary vein with abnormal pulmonary venous return associated with arteriovenous fistula has not been reported previously.

C14 - 29
THE RESULTS OF THE COMMON ATRIOVENTRICULAR SEPTAL DEFECT CORRECTION BY A MODIFIED DOUBLE-PATCH METHOD
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Objective: The aim of the study was to evaluate the results of the common atrioventricular septal defect surgical correction by the modified double-patch method.
Methods: From 2003 to 2005, 51 patients underwent surgical correction by the modified double-patch method. There were 30 (58.8%) males, 21 (41.2%) females. The mean age of the patients was 132±57 days and the weight - 4.7±1.6 kg. By the ECG diagnosed 43 (84.3%) patients with type “A”, 6 (11.7%) type “B”, 2 (3.9%) type “C”. Surgical correction was performed by the double- patch method with left atrioventricular component elevation. By this surgical technique physiological atrioventricular angle was achieved.
Results: The procedure was successful in 45 (88.2%) patients. Moderate mitral regurgitation was registered in 3 (5.9%) cases. Another 3 patients with severe mitral regurgitation required mitral valve replacement. There were 2 (3.9%) deaths after all procedures. One of these patients underwent mitral valve replacement.
Conclusion: Modified double-patch method is an effective technique that can provide an adequate atrioventricular valve function in patients with common atrioventricular septal defect.

C14 - 30
RESULTS OF EXTRACARDIAC FONTAN PROCEDURE IN THE TREATMENT OF SINGLE VENTRICLE
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Objective: Overall frequency of single ventricle (SV) variants are 7.7%, when expressed as a fraction of all congenital heart defects. Subsequent to the initial palliative procedures most patients with single ventricle undergone Fontan procedure. The subject of the study was to evaluate the results of Fontan operation with extracardiac conduit.
Methods: We retrospectively reviewed clinical records of 43 patients with functional SV who undergone Fontan procedure with extracardiac conduit between 1991 and 2005. The mean age of patients was 8.2 years (3.8-16 years) median weight - 23.7 kg (11-45 kg). The majority of patients had tricuspid atresia (n = 23; 53%) and double inlet ventricle (n = 15; 34%). A palliative systemic-topulmonary shunt was performed in 22 patients, pulmonary artery band in 4 patients, a bidirectional cavo-pulmonary anastomosis was performed prior to Fontan in 42 patients. Mean preoperative percutaneous oxygen saturation was 78%, mean pulmonary arterial pressure was 9.2 mmHg, mean pulmonary vascular resistance was 1.5 Wood’s units.
Results: The 30-day mortality was or 9.3% (n = 4). There were no late deaths in our series. Mean CPB time was 73 min (ranged 0-361 min). Off-pump technique was used in 1 case. Fenestration was performed in 3 patients. Prosthetic tube grafts were used in all cases. The median duration of mechanical ventilation was 17 h, median duration of inotropic support - 32 h and median time of ICU stay - 90 h. Median chest tube drainage was 8 days. Follow-up averaged 3 years. On discharge from hospital, the percutaneous oxygen saturation on room air was 94%. At discharge all patients were assigned to the New York Heart Association functional class I.
Conclusion: Extracardiac modification of Fontan operation can be performed in patients with single ventricle with acceptable short- and medium-term results.

C14 - 31
RESULTS OF TETRALOGY OF FALLOT REPAIR IN INFANCY
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Objective: Tetralogy of Fallot comprises 10% of congenital heart defects (the most common cyanotic defect). Early total correction is generally preferred and is performed by widening the right ventricular outflow tract and closing the VSD. The subject of the study was to assess the early postoperative result of Tetralogy repair in infancy.
Methods: We retrospectively reviewed clinical records of 71 patients with tetralogy of Fallot who were operated in our department between 1993 and 2005. The mean age of patients was 7.8 months (3-12 months), median weight - 7.5 kg (4.5-9.8 kg). Mean preoperative saturation was 87%. 12 patients had hypercyanotic spells (17%). The accompanying noncardiac anomalies were found in 19 patients (27%). 4 patients were previously palliated (modified Blalock-Taussig shunt). Indications for operation were: LVEDD no less then 70% from normal, McGoon index no less then 1.8. 3 patients needed diagnostic catheterization before operation.
Results: Performed procedures included transatrial VSD closure. In 15 cases the arterioplasty was extended to the pulmonary artery branches, and

pulmonary artery valvuloplasty was needed in 13 patients, transanular patch was used in 39 cases. Mean CPB time was 87 min (ranged 43-186 min), mean cross-clamp time 39 min (19-75 min), Circulatory arrest was used in 8 patients (mean duration of circulatory arrest was 20 min). Early mortality was 2.8% (2 patient). The median duration of mechanical ventilation was 26 h, median duration of inotropic support - 2 days and median time of ICU stay - 4 days.

Conclusion: Repair of tetralogy of Fallot in infancy is associated with a low early mortality. Routine primary repair of tetralogy of Fallot in the young infant can be accomplished with excellent early results. However, long-term follow-up is necessary to assess the impact of early repair on late right ventricular function and need for reintervention.

11.00-13.00
MAY 14, 2006 4TH CONGRESS DAY

11TH BIS VASCULAR SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

V11b - 1
EXTRINSIC COMPRESSION OF THE SUBCLAVIAN VEIN STENT IN HEMODIALYSIS PATIENT WITH THORACIC OUTLET SYNDROME
Yamada F., Castro M.T., Nóbrega V.A.J., Terci W., Petterle H.P., Dietrich R.A., Iwasaki L.S.M., Manzioni R., Rabboni E., Diniz Jr. G.J.
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Objective: Reports a case of inadvertent compression of the stent emplacement in subclavian vein in patient with thoracic outlet syndrome.
Methods: Medical record review.
Results: Hemodialysis patient with an arteriovenous fistula brachial-cephalic in left arm, developed with left arm edema and high access pressure at hemodialysis. Patient had a previous history of subclavian vein cannulation. Venography diagnosed left subclavian vein stenosis. The patient was submitted to endovascular stent placement (Express 10 x 37 mm) with initial technical success. The patient developed arm edema, pain and fistula failure in postoperative. Fourteen day postoperative, patient accomplished a new venography that showed left subclavian vein occlusion and stent deformity (extrinsic compression of the stent between clavicle and first rib).
Conclusion: Central venous is a common problem in hemodialysis patient. The most well known cause is intrinsic stenosis, usually a result of subclavian vein catheterization, however, before the treatment must be to exclude the diagnosis of the thoracic outlet syndrome.

V11b - 2
SCLEROTHERAPY IN THE TREATMENT OF VENOUS STASIS DERMATITIS
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Objective: Superficial venous incompetence is the most common form of chronic venous insufficiency (CVI). Stasis dermatitis is a very often complication of CVI and may be a precursor of venous leg ulceration and lipodermatosclerosis. It often appears on the medial ankles of middle-age and elderly patients. Stasis dermatitis is usually difficult to treat. Correction of retrograde flow is necessary for effective treatment. In case of minor or moderate phlebectasy, sclerotherapy seems to be a good way for it. To verify this supposition we have performed the clinical investigation presented below.
Methods: Forty five patients (15 male and 30 female) with acute or chronic venous stasis dermatitis (C4 – CEAP classification) due to superficial venous incompetence were chosen for this investigation. Patients were previously examined physically and with ultrasonography (in all patients deep veins were in good condition). Evidence of varicose veins was different: CEAP As2 – 6 patients; CEAP As3 – 27; CEAP As4 – 9; corona phlebectatica – 3. The presence of venous stasis dermatitis was from 4 months to more than 1 year. All of them were treated first by sclerotherapy of varicose veins using a sodium tetradecylsulfate (0.5 – 3%). In 7 – 10 days after finishing of sclerotherapy course, local and systemic antibacterial, antiinflammatory and reparative therapy was performed. Antibacterial therapy was prescribed for all patients with strict accordance to results of bacteriological analysis. Control group (25 patients suffered from venous stasis dermatitis in 4 – 12 months) was treated in the same way, but without previous sclerotherapy. Adequate elastic bandage was recommended for both groups.
Results: In most patients treated by sclerotherapy good results in skin condition were achieved. Full remission of stasis dermatitis after proper treatment was in 3 – 4 weeks (37 patients or 82%), up to 6 weeks (6 patients or 13%) and more than 6 week (only 2 patients or 5%). In control group results were the followings: remission in 3 – 4 weeks – 1 patient (4%), up to 6 weeks – 2 patients (8%), from 6 weeks to 3 months – 13 patients (52%). Nine patients (36%) have not reached a full remission of dermatitis in 6 months.
Conclusion: Sclerotherapy is an effective method for complex treatment of superficial venous incompetence and venous stasis dermatitis as its complication. This method might be recommended even for small clinics. Obligatory condition for sclerotherapy performing is a good qualification and special training of medical stuff.

V11b - 3
GENETIC RISK FACTORS FOR VENOUS THROMBOSIS IN BELARUS
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Objective: Several genetic defects are associated with increased risk of venous thrombosis. Factor V Leiden (FVL) and prothrombin G20210A mutations are the most frequent causes of inherited thrombophilia in Western populations. The relationship of C677T mutation in the 5.10methylenetetrahydrofolate reductase (MTHFR) gene with venous thromboembolism (VTE) remains controversial. The purpose of this study was to evaluate the association of the FVL, prothrombin G20210A and MTHFR C677T mutations with VTE in Byelorussian population.
Methods: The study included 85 unselected patients with VTE and 150 controls from collection of Guthrie cards from Byelorussian Newborn Screening Program. All samples were tested for the FVL, prothrombin G20210A and MTHFR C677T mutations using allele-specific oligonucleotide hybridization assay.
Results: Eight patients (9.4%) were heterozygous for FVL, 10 (11.7%) were heterozygous for prothrombin mutation, 39 (45.8%) were heterozygous and 9 (10.5%) were homozygous for MTHFR C677T. Eight patients (9.4%) heterozygous for FVL or prothrombin mutation were also hetero- or homozygous for C677T MTHFR mutation. Frequencies of FVL, prothrombin G20210A, hetero- and homozygous C677T MTHFR mutations in control group were 2%, 2%, 45.5% and 9.3% respectively. Carriership of FVL or prothrombin mutation together with hetero or homozygosity for the T677 allele of the MTHFR gene was identified in 2 (1.3%) cases in controls. For the patients the prevalence of the FVL and prothrombin mutations was significantly higher than in the control group. There was no significant difference in prevalence of homozygosity for MTHFR C677T in patients and controls. The odds ratio for venous thromboembolism in the presence of FVL was 5.09 (95% confidence interval (C.I.) 3.6 to 17.4) and 6.53 (95% C.I. 3.7 to 13.6) in presence of prothrombin G20210A mutation. Frequencies of FVL, prothrombin G20210A mutation and their combination with hetero- or homozygosity for the T677 allele of the MTHFR gene were higher among patients who had such complications of venous thrombosis as pulmonary embolism and post-phlebitic syndrome. The odds ratio for such complications in carriers of prothrombin G20210A or FLV was 4.7 (95% C.I. 2.6–8.4) and 7 (95% C.I. 3,08 to 16.58) in patients heterozygous for FVL or prothrombin mutation and hetero- or homozygous for C677T mutation.
Conclusion: FVL and prothrombin G20210A mutations are important risk factors for VTE in Belarus. Homozygosity for the T677 allele of the MTHFR gene has not been found in association with venous thromboembolism, but it seems to be an important additional factor, which can influence the probability of complications of VTE.

V11b - 4
STRUCTURE, OUTCOMES AND LONG -TERM RESULTS OF INFERIOR VENA CAVA INJURIES
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Objective: Injuries of the inferior vena cava (IVC) continue to be among the most frequent trunkal vascular injuries with high mortality. The aim of study was to conduct retrospective analysis of structure and results of rendering of aid patients with IVC injuries in various medical establishments of Belarus from 1984 through 2003 years.
Methods: For reception of the information of patients with ICV injuries has been demanded of documentation to 102 patients (6 patients in period from 1 month till 12 years were investigation with both ultrasound and spiral computed tomography for analysis of the long-term results).
Results: Mechanism of injuries included penetrating injuries in 69 (67.5%) patients, blunt trauma in 29 (28.2%), gunshot in 4 (4.3%) patients. There depending on anatomic localization of an IVC injury, the cases were distributed as follows: in the field of vv. illiaca communis confluence – 7 cases, infrarenal and renal segment – 53, suprarenal one -22, retro- and suprahepatic ones – 20 cases. Associated injuries were common, only four patients (3.9%) had an IVC injury in isolation. Injuries were treated using primary suture repair - 72 (90%) patients, caval ligation - 5 (6.2%), and prosthetic grafting - 3 (3.8%) cases. 55 patiens (53.9%) died. Mortality of the patients with injuries of supra-and retrohepatic segment of IVC composes 100%, suprarenal - 70%, infrarenal – 30.7%. In 2 of 6 patients we detected stenosis IVC in the field of suture. 1 patient with caval ligation had significant edema of the lower extremities with dilatations lumbar veins.

Conclusion: Trauma IVC - the emergency surgical pathology demanding steadfast attention at all stages of medical care. It is necessary to patient with ICV injuries examination on the every and in the nearest period (from 1 up to 3 month) after to be discharged from hospital.

V11b - 5

TRAUMATIC UPPER EXTREMITY ARTERIAL INJURY

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Objective: Our aim in this retrospective study is to analise our strategies for management and surgical treatment of traumatic upper extremity arterial injury.
Methods: 147 patients with traumatic upper extremity arterial injuries were operated in Izmir Atatürk Education and Research Hospital, Department of Cardiovascular Surgery between the dates August, 1996 -December, 2005. The 136 patients were male, 11 patients were female and their ages ranged from 7 to 75 years (average 28 years). 116 of 147 patients had penetrating injuries, 16 of them had shotgun injuries and 15 of them had blunt trauma injuries.
Results: Arterial repair method for all of the 199 arterial injuries were end-to-end anastomosis in 103, primary repair in 27, reverse saphenous vein graft interposition graft in 61, and ligation in 8 injury. Venous continuity was provided in 21 of 28 patients who have major venous injuries. Primary fasciotomy was performed in 20 patients (13.6%). Forty-eight of 147 patients had peripheral nerve injury. Amputation has been performed in one case. There was no mortality.
Conclusion: We believe that good result can be achieved by careful physical examination and by Doppler ultrasonographic examination and vascular repair which is combined with the debritment of non-viable tissues in order to provide viability in upper extremity vascular injuries. Traumatic neurologic injury may has a important influence in extremity disability.

V11b - 6

ENDOVASCULAR THERAPY OF THE CELIAC TRUNK AND SUPERIOR MESENTERIC ARTERY OSTIAL STENOSIS: A REVIEW OF 12 CASES

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Objective: The aim of the study was to evaluate the usefulness of the endovascular therapy in celiac trunk pathology.
Methods: We reviewed 12 symptomatic patients with the celiac trunk and superior mesenteric artery stenosis, who underwent endovascular therapy in our Department in the years 2000–2005. The ostial stenosis presence was confirmed by Color Doppler, angio-CT and angiography. In all cases primery stent placement was done.
Results: In perioperative period one death was observed, becaused of thoracic aorta dissection. No other complications have been observed. In group patients the nutritional status improved and the abdominal symptoms diminished
Conclusion: The endovascular therapy of the celiac trunk and superior mesenteric artery ostial stenosis is a useful therapeutic option, and the open surgery is still recommended in patients, in which endovascular treatment is not possible.

V11b-7

ENDOVASCULAR STENT PLACEMENT IN THE TREATMENT OF CENTRAL VENOUS OBSTRUCTION IN HEMODIALYSIS PATIENTS

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Objective: The purpose of the study was to report our experience and results with the endovascular treatment of central vein stenosis and occlusions in patients with failing upper extremity arteriovenous access.
Methods: Between February 2004 and September 2005, we performed 12 interventional procedures in 11 patients ranging in age from 45 to 82 years (mean 65 years). The indication for intervention was stenosis (58.4%) or occlusion (41.6%) of a central vein in the upper arm used for dialysis in patients with arm swelling and for shunt malfunction. All patients had a previous history of subclavian vein cannulation. All patients were treated for percutaneous transluminal angioplasties with primary stent lacements. The mean follow-up was 6.2 months (range 1–19 months). Following treatment, patients were monitored clinically for signs of recurrent arm edema or high access pressures and stent patency with venography.
Results: The initial technical success rate was 100%. The improvement of clinical signs appeared after 4 months. The recurrence arm edema rate was 66.6% at 30 days and 41.6% at 6 months, with a primary assisted patency rate of 50% and secondary patency rate of 50% (n = 2).
Conclusion: Central vein stenosis and occlusions are associated with previous subclavian vein cannulation. Endovascular stent placement is an effective alternative to surgery in patients with shunt dysfunction due to obstruction of an upper extremity central vein. Repeated interventions are usually required to prolong stent patency.

V11b - 8

STERILE PARAANASTOMOTIC ANEURYSMS OF THE ABDOMINAL AORTA: A 25YEAR EXPERIENCE REVIEW

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Objective: This is a single-Institution retrospective review of clinical presentation and management of sterile Paraanastomotic Aneurysm of the Abdominal Aorta treated in our Department.
Methods: Sterile paraanastomotic aneurysm is a late complication of infrarenal aortic grafting for both occlusive and aneurysmal disease. They can be true aneurysms of the aortic remnant near the anastomosis or pseudoaneurysm of the suture line. The true incidence is actually difficult to determine: some retrospective series reported an overall incidence of 0.2–15%, but the phenomenon seems to increase. From October 1979 to November 2005, we treated 25 sterile paraanastomotic aneurysms, 21 pseudoaneurysms, 2 pseudoaneurysms and type-IV thoracoabdominal aneurysm of the above aorta and 2 true aneurysms. Fourteen cases (56%) were symptomatic for abdominal pain, gastrointestinal bleeding, lower limb ischemia, asthenia, back pain with lumboischialgia; eleven asymptomatic cases (44%) were discovered incidentally during a periodical follow-up. None of the patients was suspected of graft infection through clinical history, laboratory examinations, CT-scan. Nineteen cases (76%), 2 true aneurysms and 17 pseudoaneurysms, underwent elective intervention, while 6 pseudoaneurysms (24%) were treated in emergency for life-threatening conditions. Surgical management included tube grafting interposition (n=12), new prosthetic reconstruction (n=7), graft removal with extraanatomic bypass (n=3). Endovascular management (n=3) consisted in free-flow endografting to exclude aneurysm. Data were analyzed descriptively and the inferential analysis was performed by means of Fishers exact test (significance level = 0.05 two-tailed).
Results: In-hospital mortality was 20% (n=5); no deaths were observed in endovascular subgroup. One patients died during elective extensive intervention, while 4 patients treated in emergency died in the early postoperative period. Mortality was 5.26 and 67% for elective and emergency cases respectively (P = 0.005). In elective surgical cases, mortality was 0 and 50% with localized and with extensive intervention respectively (P=0.09). Moreover, mortality was 28.57% and 9.09% in symptomatic and asymptomatic subgroup respectively (P=0.34). Early postoperative morbidity was 54.1%, 55.5% in elective cases and 50% in emergency cases (P=1).
Conclusion: Sterile paraanastomotic aneurysms tend to be asymptomatic and difficult to diagnose. They also represent an underestimated phenomenon and incidence increases with the length of postoperative interval after aortic grafting. Moreover, mortality is very different in elective vs. emergency subgroup, so elective treatment is required to obtain a good outcome. Endovascular treatment could be helpful in reducing perioperative adverse events. For these reasons, all patients submitted to abdominal grafting need a lifetime surveillance program.

V11b - 9

RECOMBINANT FACTOR VIIA (RFVIIA) IN THE MANAGEMENT OF BLEEDING IN PATIENTS UNDERGOING ABDOMINAL AORTIC ANEURYSM (AAA) RECONTRUCTION

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Objective: Recombinant activated factor VII is well known haemostatic agent indicated for control of bleeding in patients with severe bleeding associated with hemophilia, thrombocytopenia and disseminated intravascular coagulation. It has been also successfully used to control peri-operative bleeding in trauma, cardio-vascular and neurosurgical patients. This data assessed the efficacy and safety of rFVIIa in patients with normal hemostasis undergoing abdominal aortic aneurysm reconstruction complicated with a large volume of blood loss.
Methods: We report 5 cases of previously healthy men without preexisting coagulopathy who had been operated because of ruptured infrarenal aortic aneurysm. Despite of administration of red blood cell concentrate, fresh frozen plasma and platelets specimens in the peri-and post-operative period the patients were unstable and presented non-surgical bleeding. Intravenous treatment with rFVIIa was used in two doses (80 μg/kg) every 2 h.
Results: In all cases bleeding stopped. The response to treatment was rapid. No sideeffects related to rFVIIa were noted. One of patients died month later because of myocardial infarction.
Conclusion: We conclude that treatment of patient undergoing AAA reconstruction complicated with non-surgical, life-treating bleeding with Recombinant Activated Factor VII seems to be effective and save.

V11b - 10
LEFT RENAL VEIN LIGATION IN ABDOMINAL AORTIC ANEURISM OPERATIONS
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Objective: During operations in huge abdominal aortic aneurisms we faced with the question – is it possible to ligate left renal vein at the time of approach to the aorta?
Methods: From 1995 to 2005, 16 patients were operated on for huge abdominal aortic aneurisms. All patients were operated through the median laparothomy, in all patients the left renal vein at the time of approach was ligated.
Results: It was necessary to ligate left renal vein because of: -in 4 cases aneurismatic distention observed higher renal arteries; -in 5 cases there was short "neck" of the aneurism -in 7 cases observed huge aortic aneurism We performed ligation proximally of origins of suprarenal and testical veins. Such approach allowed us to preserve normal flow-out from left kidney. During operation and early postorera-tive period all the parameters (urea, creatinine, diuresis rate) were normal. We have not observed acute renal insufficiency. In all patients hypertonic disease was revealed before operation. Two patients developed moderate progression of the vasorenal hypertension treated medically with success. Two patients had chronic renal insufficiency before operation without progression after it.
Conclusion: We advocate ligation of the left renal vein during operations in huge abdominal aortic aneurisms.

V11b - 11
ENDOTHELINE-1 BLOOD SERUM LEVEL IN PATIENTS WITH ATHEROSCLEROTIC CRITICAL LOWER LIMB ISCHEMIA AS A PROGNOSTIC TEST FOR RECONSTRUCTIVE OPERATIONS
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Objective: To study a blood serum content of endotheline-1 in patients with critical lower limb ischemia due to atherosclerosis and to determine its prognostic significance for evaluation of results of reconstructive operations.
Methods: The investigation of blood serum content of endotheline-1 was performed in 33 patients aged 49 to 78 years suffering from atherosclerotic critical lower limb ischemia before surgical intervention in regional blood flow (greater saphenous vein of the affected limb) and in systemic blood flow (cubital vein). In 28 cases were realized reconstructive vascular operations and 5 patients underwent primary amputations of lower limbs. Control group was formed of 20 healthy people aged 25 to 35 years. The content of endotheline-1 was detected by immune-enzyme method.
Results: It was obtained that blood serum content of endotheline-1 before surgical operation was increased reliably in all observed patients in comparison with control data. There were registered the reliably higher level of endotheline-1 in regional blood flow in patients with primary and secondary (after reconstructive operations) amputations of limbs relative to patients with satisfactory results after reconstructive surgical operations (P<0.01 and P<0.05 pro tanto). In systemic blood flow there was detected the contrary tendency (P>0.05). Consequently we calculated a coefficient of ratio of endotheline-1 content in regional blood flow to its systemic level (K reg/syst). The coefficient appeared to be reliably higher in patients with primary and secondary amputations than in to patients with satisfactory results after reconstructive operations (P<0.001). There was established that if K reg/syst <1 then prognosis for limb preservation is favorable.
Conclusion: The presented data confirm a possibility to forecast outcomes of reconstructive surgical operations in patients with atherosclerotic critical lower limb ischemia in preoperative period using the coefficient of ratio of endotheline-1 content in regional blood flow to its systemic level.

V11b - 12
COMPARATIVE ANALYSIS OF LONG-TERM MORPHOMETRIC DATA FROM CANINE AORTA AFTER ENDOLUMINAL STENTING, STENT-GRAFTING, AND STENTGRAFTING WITH BALLOON DILATATION
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Objective: We hypothesized that there are morphometrically significant differences in the long-term healing characteristics of various endovascular devices and procedures.
Methods: A total of 32 bare and covered stents were placed in the thoracoabdominal aorta of 16 mongrel dogs. Ten animals harboring 20 devices (12 bare-stents, 4 stent-grafts, and 4 stent-grafts with post-deployment adjunctive balloon dilatation) underwent a one-year follow-up. Aortic wall morphometry with comparative statistical analysis was performed in the three groups (Bare Stent, Stent-Graft, and Stent-Graft with Balloon Dilatation) with regard to medial thickness, luminal neointimal thickness, combined neointima and graft thickness, total wall thickness, number of medial lamellar units and medial smooth muscle cell density. Tissues were harvested from multiple sites within the same device to strengthen the statistical analysis.
Results: No dissection, dilatation, or stenosis of the aorta occurred in any group. At one year, aortic media in the Stent-Graft with Balloon Dilatation group was considerably thinner compared with that in the Stent-Graft and Bare-Stent groups (Balloon Dilatation group; 371±35 μm, Stent-Graft group; 548±68 μm, P<0.0001 at mid-device area). The number of medial lamellar units, however, showed no significant difference among the three groups. Neointima was the thickest in the Stent-Graft with Balloon Dilatation group and thinnest in the Bare-Stent group (Balloon Dilatation group; 570±274 μm, Bare-Stent group; 251±27 μm, P = 0.004 at proximal device area). Qualitative aortic wall histology in the three groups was comparable.
Conclusion: Despite a comparable qualitative histology, certain aortic wall morphometric parameters showed important differences among the Bare-Stent, Stent-Graft, and Stent-Graft with Baloon Dilatation groups at one year. Proper understanding of these differences may help in the selection of appropriate device and procedure for a given lesion.

V11b - 13
EFFECTS OF ILOPROST AND PENTOXIFYLLINE ON RENAL ISCHEMIAREPERFUSION IN RABBIT MODEL
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Objective: There are limited numbers of reports about the effects of Pentoxifylline (Ptx) and iloprost (IL), a stable prostacyclin analog on ischemia-reperfusion injury. The effects of these agents on the ischemia-reperfusion injury have been studied on the skeletal muscles, liver, myocardium and spinal cord. However, there are few studies which have been reported concerning the Ptx and IL on the renal ischemia reperfusion. We investigated the effects of iloprost and pentoxyfillin renal ischemia-in rabbit model.
Methods: Thirty rabbits were groupped into three. Iloprost was continuously infused starting half an hour before the reperfusion after 2 h ischemia and during the 4 h reperfusion period in Group 1 whereas the Group 2 was treated with pentoxyfillin as the same manner. The third group was the

control group which did not received any medication. The kidneys of the rabbits were evalutated by light microscope. Microscopic renal injury is said in the presence of tubuler necrosis and atrophy, regenerative atypia, hydropic degeneration, interstitial fibrosis, loss of supranuclear cytoplasms and brush border disappearance. Renal injury was scored semiquantatively according to these characteristics as; grade 0 as normal, grade 1 as mild (focal), grade 2 as moderate (multifocal) and grade 3 as severe (diffuse) pathologic changes Besides, lipid peroxidation was evaluated between the groups.
Results: Histologic evidence of reperfusion injury was the presence of tubuler necrosis and atrophy, regenerative atypia, hydropic degeneration, interstitial fibrosis, loss of supranuclear cytoplasms and brush border disappearance. The mean histopathologic scores of the Group 1 and in Group 2 were significantly lower than the control group. (Group 1 vs. Group 3; $P<0.001$, Group 2 vs. Group 3; $P = 0.001$, Group 1 vs. Group 2; $P = 0.331$). There was no significant difference between IL and Ptx groups ($P = 0.331$; NS). The malonaldehyde (MDA) levels of the medicated groups were significantly lower when compared with the control group. Mean MDA levels were 109±11 nmol/gr tissue in group 1, 119±15 nmol/gr tissue in Group 2 and 132±14 nmol/gr tissue in Group 3 (Group 1 vs. Group 2; $P = 0.130$, Group 1 vs. Group 3, $P = 0.002$, Group 2 vs. Group 3; $P = 0.045$).
Conclusion: IL and Ptx were proved to reduce ischemia-reperfusion injury in rabbit kidneys microscopically. Besides, IL and Ptx provided lower lipid peroxidation products. However, conclusion on ther protective effects of IL and Ptx renal ischemia-reperfusion injury needs further comprehensive studies.

V11b - 14
EXTENSIVE ANEURYSM OF BOVINE MESENTERIC VEIN GRAFT: A LATE COMPLICATION
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The vascular graft aneurysm is a rare complication after vascular surgery. In October 2005, a 54-years-old man was presented with severe pain and pulsatile mass of his right leg. He was operated in 2001 and right iliofemoral bypass and bilateral above knee femoropopliteal bypass was performed. Iliofemoral graft was the PTFE graft and femoropopliteal grafts were were the bovine mesenteric vein grafts. There was massive pulsatile mass on right leg along the bovine mesenteric vein graft. All pulses were exist. Computerized tomography and MR angio were demonstrated extensive aneurysm of the femoropopliteal bovine mesenteric vein graft. The patient was operated because of the diagnosis bovine mesenteric vein graft aneurysm. Aneurysmectomy and femoropopliteal bypass with Shelhigh internal mammary artery graft was performed.

V11b - 15
ANATOMICAL RANGE OF GSV TRUNK INSUFFICIENCY
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Objective: The aim of the study is to estimate the anatomical range of GSV trunk insufficiency in patients suffering from varicose veins in GSV tributaries' region.
Methods: We have examined with a duplex ultrasonograph 152 subsequent patients admitted to our ward between 1 Jan 2005 and 2 Dec 2005 for surgical treatment of varicose veins. Ten of them was excluded from the analysis as GSV was not involved (insufficient SSV in 9 cases, crural perforators in 1 case). We have divided our findings of GSV insufficiency as ranging down to: upper femoral segment, lower femoral segment, upper, middle and lower crural segment. We have also checked the reflux direction (to anterior or posterior tributaries) below the GSV trunk insufficiency.
Results: In 12% of cases whole GSV trunk was involved. Another 14% patients had GSV insufficient to the middle crural segment. Trunk insufficiency reaching upper crural segment was found in 49% of examined group, with outflow to Leonardo's vein and to anterior crural vein in 35 and 14% of cases respectively. Insufficiency involving lower femoral segment was seen in 14% of patients, while reflux limited to upper femoral segment in 11% of patients.
Conclusions: Our findings suggest that incidence of insufficiency of whole GSV trunk may be underestimated. Nevertheless, down-to ankle stripping or obliteration of GSV as a standard procedure in treatment of varicose veins in GSV tributaries' region does not seem rational, as the GSV trunk remains not involved in pathological process below upper crural segment in 74% of cases.

V11b - 16
COMPARATIVE HISTOLOGICAL EXAMINATION OF ACUTE, SUBACUTE AND CHRONIC VASCULAR LESIONS AFTER STENT IMPLANTATION IN HUMAN AND DOG ARTERY
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Objective: The histological examination of vascular biological alterations of peripheral vessels induced by stent implantation greatly helps to understand the pathomechanism of subsequently developed restenosis.
Methods: The international literature mainly includes histological data about stent implantation in coronary arteries but follow-up studies comparing human and animal models concerning peripheral arterial wall are hardly available.
Methods: The purpose of this study was the evaluation of the vascular wall response to the stent at cellular-histological level comparing human and animal models one day, one week and one month after stent implantation. To characterize these processes leading to patency of vascular lumen and to determine the factors that influence the thickness of vessel wall in the newly forming intra- and perivascular structures, we have performed parallel histological and immunohistochemical analysis in paired samples of human and animal vessels.
Results: The results of the histological examination showed that the endothelial denudation, the fragmentation of internal elastica lamina and microthrombosis developed in the early phase. At the end of the first week, inflammatory cellular infiltration of the vessel wall and smooth muscle cell-fibroblast proliferation were seen with transient mild stenosis of the lumen. In the third phase, vessel wall structural restitution and remodeling took place, with decreasing cellular infiltration and cell proliferation. In addition, a mild collagen deposition was observed and the cross-section of the vessel was distorted.
Conclusion: To sum up the above findings, four distinct phases of pathological reactions can be observed after stent implantation: thrombosis, inflammation, cell proliferation and vessel wall remodeling. Our results indicate that the post-implantation lesions of the peripheral artery of dog correspond to that of the human samples, so the animal model is appropriate for further endovascular modelling and investigation of pathomechanism of restenosis. The pathological changes of restenosis developed at the end of the first month, thus, the later complications should be considered as freshly forming stenosis or occlusion.

V11b - 17
SURGICAL TREATMENT OF UNILATERAL ILIAC ARTERY OCCLUSIVE DISEASE USING RETROPERITONEAL APPROACH
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Objective: Unilateral iliac artery obstruction is a rare disease. Because, occlusive process is generally diffuse and bilateral involvement of the iliac arteries is eventually present. Unilateral aorto-/iliofemoral and aortoiliac bypass using retroperitoneal approach offers a significant advantage for long term results.
Methods: From December 1999 through December 2005 unilateral aorto/iliofemoral and aortoiliac bypasses were done to 23 patients for unilateral iliac occlusive disease in our clinic. Three of the patients were female and seventeen were male. Average age was 57 years with a range between 45 to 68 years. Indications for operations included claudication in 7 patients, rest pain in 14 patients, and non-healing ulcer or gangrene in 2 patient. All patients were treated surgically under general anesthesia and extraperitoneal exposure was used. Surgical procedures included aortofemoral bypass in 10 patients, iliofemoral bypass in 12 patients, aortoiliac bypass in one patient. In 7 of the patients, in addition to aortoiliac and iliofemoral bypass, femoropopliteal bypasses were also performed with ipsilateral safeneous vein.
Results: There was no operative and postoperative mortality. Immediate success was obtained in all patients. We did not observe any vascular problems. Graft patency was assessed with duplex ultrasonography on a yearly basis. In follow-up period, graft patency was 100%.
Conclusions: Retroperitoneal approach for unilateral iliac obstructive disease is a well-tolerated procedure with an excellent long-term outcome. It is a valuable alternative to conventional aortobilateral reconstruction in unilateral symptomatic aortoiliac disease.

V11b - 18

SUBCLAVIAN ARTERY OCCLUSION AFTER RADIOTHERAPY FOR CARCINOMA OF THE BREAST: A CASE REPORT

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Objective: Symptomatic occlusion of the subclavian artery is a very rare complication of radiation therapy for carcinoma of the breast. Numerous adverse reactions may occur secondary to radiation therapy. A well known side effect is radiation induced occlusive lesions and the enhancement of normally occurring atherosclerosis. Post-irradiation subclavian arteriopathy can develop 6 months to 20 years after radiotherapy. We report a case who presented with severe right upper limb ischemia following previous radiotherapy for breast carcinoma.
Methods: A 50-year-old female had been treated with ionizing radiation after right mastectomy for breast carcinoma seven years before. She was admitted to our clinic for rest pain, numbness, and weakness of the right upper extremity. In physical examination, upper extremity brachial systolic blood pressure difference was detected. No arterial pulse was detected in the affected extremity. Aortic arch aortography demonstrated complete occlusion of the right subclavian artery after take off vertebral artery, which was presumed to be the result of previous radiation therapy. Patient was treated surgically under general anesthesia. Right supraclavicular incision was performed for proximal subclavian artery, and infraclavicular-deltopectoral incision was used for axillary artery exploration. Right subclavian artery to right axillary artery bypass was performed with 6 mm polytetrafluoroethylene (PTFE) graft .
Results: Histopathologic examination of the resected arterial sections revealed fibrotic changes in the media, and adventitia, and thrombotic changes in the obliterated vessel lumen. The patient was discharged without any complication.
Conclusions: It is our contention that radiotherapy was the cause of the subclavian artery occlusion in this presented case.

V11b - 19

ENDOVASCULAR AND SURGICAL THERAPY OF CELIAC TRUNK STENOSIS: A REVIEW OF 20 CASES

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Objective: to evaluate the usefulness of the endovascular therapy in celiac trunk pathology.
Methods: We reviewed 20 symptomatic patients with the celiac trunk stenosis, who underwent open surgery (10 cases) or endovascular therapy (10 cases) in our department in the years 2000–2005. The stenosis presence was confirmed by color Doppler ultrasound examination and angiography.
Results: in the surgery group 2 deaths in perioperative period were observed, and one patient complained on epigastric pain up to 3 weeks after the procedure, however normal flow in the celiac trunk was observed in the CDD-ultrasound exam. We observed 1 death in perioperative period in the endovascular group, however no other major complications have been observed. The postoperative stay was significantly shorter in the endovascular patients. In all patients the nutritional status improved and the abdominal symptoms diminished.
Conclusion: the endovascular therapy of the celiac trunk stenosis is a useful therapeutic option, however the open surgery is still recommended in patients, in which endovascular treatment is not possible.

V11b - 20

HISTOLOGICAL EVIDENCE OF INTIMAL HIPERPLASIA AFTER PROVOQUED STENOSIS IN AN ARTERIAL RAT MODEL OF STUDY

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Objective: Purpose: Evaluate the repercusions of the stenosis in the distal artery for hemodynamic changes for repercusions in vascular wall due a turbulence flow.
Methods: Twenty five Wistar male rats were studied. After an intraperitoneal anaesthesia (70 mg/Kg Chrohidrate of ketamine), each right carotid artery was dissected and a collar system was appliquéd for reducing a 50% the lumen of artery. The vascular specimens were then harvested for pathologic examination, electron microscope observation and histological staining detection. The vessel wall thickening was evaluated after 30 and 60 days by histological, ultrastructural, morphometric analyses.
Results: The structural changes of the arterial wall evaluated with optical and ultrastructural microscopic show alterations in the three layers of the arterial walls in special and the intimal and muscular layers. the adventicia alsa have alterations in the vascularizations with new vasculature. The evaluations of the arterial wall indicate thikness of intima an muscular layer.
Conclusion: Our findings indicate that arterial stenoses stimulates intimal thickening.

V11b - 21

COMPARATIVE HISTOLOGICAL EXAMINATION OF ACUT, SUBACUT AND CHRONIC VASCULAR LEASIONS AFTER STENT IMPLANTATION IN HUMAN AND DOG ARTERY

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Objective: The histological examination of vascular biological alterations of peripheral vessels induced by stent implantation greatly helps to understand the pathomechanism of subsequently developed restenosis. The international literature mainly includes histological data about stent implantation in coronary arteries but follow-up studies comparing human and animal models concerning peripheral arterial wall are hardly available.
Methods: The purpose of this study was the evaluation of the vascular wall response to the stent at cellular-histological level comparing human and animal models one day, one week and one month after stent implantation. To characterize these processes leading to patency of vascular lumen and to determine the factors that influence the thickness of vessel wall in the newly forming intra- and perivascular structures, we have performed parallel histological and immunohistochemical analysis in paired samples of human and animal vessels.
Results: The results of the histological examination showed that the endothelial denudation, the fragmentation of internal elastica lamina and microthrombosis developed in the early phase. At the end of the first week, inflammatory cellular infiltration of the vessel wall and smooth muscle cellfibroblast proliferation were seen with transient mild stenosis of the lumen. In the third phase, vessel wall structural restitution and remodeling took place, with decreasing cellular infiltration and cell proliferation. In addition, a mild collagen deposition was observed and the cross-section of the vessel was distorted. To sum up the above findings, four distinct phases of pathological reactions can be observed after stent implantation: thrombosis, inflammation, cell proliferation and vessel wall remodeling.
Conclusion: Our results indicate that the postimplantation lesions of the peripheral artery of dog correspond to that of the human samples, so the animal model is appropriate for further endovascular modelling and investigation of pathomechanism of restenosis. The pathological changes of restenosis developed at the end of the first month, thus, the later complications should be considered as freshly forming stenosis or occlusion.

V11b - 22

CILOSTAZOL INHIBITS BALLON-INDUCED INTIMAL HYPERPLASIA IN RATS

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Objective: An experimental study is performed for evaluation of the effects of cilostazol in the secondary damage after angioplasty balloon in the rat.
Methods: The common carotid artery was injured in rats with a 3 French angioplasty balloon catheter. The group with injured artery is compared with experimental group treated with cilostazol. Histological and ultrastructual findings were compared with those in untreated control lesions in the carotid artery with the evaluation of the images of the arterial wall in the intimal, muscular and adventitial zones.
Results: The results show the beneficial effects of the treatment with silostazol in the prevention of the intimal hyperplasia for injury of the mechanical treatment with an angioplasty balloon.
Conclusion: Cilostazol have benefical effects in arterial injury potangioplasty with balloon.

V11b - 23

ENDOVASCULAR TREATMENT OF VISCERAL ARTERY ANEURYSMS

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Objective: To evaluate the diagnosis and treatment of visceral artery aneurysms.
Methods: We conducted a retrospective review of 12 patients with visceral artery aneurysms from 1995 to 2005. There were patients from 43 to 67 years old. Multiprojection aortography and selective visceral angiography were performed for all patients. From 2 to 20 coils or stent-graft was used for occlusion.
Results: In our Institute 12 patients with visceral artery aneurysms were identified: 6 splenic, 2 pancreatoduodenalis inferior, 2 gastroduodenalis, 1 gastroepiploica dextra, 1 hepatic dextra. Endovascular interventions included 4 embolizations of visceral arteries, 2 embolization of visceral artery aneurysms and 1 stent-graft. In 4 studies we used diagnostic aortography and selective visceral angiography, without endovascular treatment. In 1 case endovascular interventions was impossible because there were anatomic considerations. There were no procedure-related deaths.
Conclusion: Visceral artery aneurysms are an uncommon form of vascular disease, yet are important to the practicing vascular surgeon because of the potential for rupture or erosion into an adjacent viscus, resulting in life-threatening hemorrhage. Endovascular intervention can provide an alternative method of treatment for visceral artery aneurysms. Catheter-based treatments with coil embolization and placement of stent-grafts have emerged as promising therapies to treat visceral artery aneurysms. Individual anatomic considerations play an important role in determining the best treatment strategy if intervention is warranted.

V11b - 24

COMPARISON OF TNF-ALPHA, IL-1, IL-6 IN ARTERIAL WALL AND SERUM IN PATIENTS WITH PRIMARY LOWER LIMB VASCULAR RECONSTRUCTIONS AND RESTENOSIS

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Objective: Group of proinflammatory cytokines, with IL-6, IL-1-beta and TNF-alpha plays major role in pathologic changes leading to atherosclerotic plaque formation. Excessive activation of the inflammatory process by cytokines may lead to unstable plaque formation and acute vascular incident. Having in consideration the differences in the response of the arteries to an impairment caused by the atherosclerotic risk factors, and the injuries resulting from operations, morphological and immunohistochemical differences in inflammatory process in arterial wall of patients undergoing primary and secondary vascular reconstruction of lower limbs, were compaired with serum concentration of selected cytokines.
Methods: Forty patients with atherosclerotic lower extremities ischemia were scheduled for vascular reconstruction. Patients with inflammatory diseases, unrelated to the ischemia, as well as patients suffering from diabetes mellitus, caner and autoimmune diseases were excluded from study. Patients were divided into two groups, depending on type of vascular reconstruction 1. Patients undergoing primary vascular reconstruction (PR) – 25, with no reconstructive procedures of arterial system (neither open, nor endovascular). 2. Patients undergoing secondary vascular reconstruction – 15, undergoing secondary revision of the arterial anastomosis due to the symptoms of ischemia after 12 months since the primary operation. Morphological and immunohistochemical evaluation of arterial wall taken from the newly planed or previous anastomosis was made. Expression of IL-1-beta, IL-6, and TNF-alpha in arterial wall was correlated with the serum concentration of the cytokines. Results were analyzed statistically.
Results: No significant differences were observed in expression of citokines in arterial wall of patients undergoing primary, or secondary vascular reconstruction ($P = 0.8$). Intensive expression of examined cytokines in the arterial wall wasn't accompanied by the growth of serum IL-1-beta, IL-6 and TNFalpha concentration. Serum concentration of IL-6 depended of the degree of the limb ischemia, and was significantly higher in patients with critical limb ischemia ($P<0.01$).
Conclusion: In patients with primary and secondary vascular reconstruction no differences in the expression of IL-6, IL-1-beta and TNF-alpha were observed in the arterial walls in area of anastomosis. Serum concentration of IL-6, IL-1-beta and TNF-alpha do not reveal significant differences between the groups. Serum concentration of IL-6, IL-1-beta, TNF-alpha didn't depend of expression of examined substances in the wall of the vessel. Advanced degree of limb ischemia causes increase of concentration of inflammatory reaction markers, especially IL-6. Morphological changes observed in examined groups reflect degenerative and inflammatory changes in arteriosclerosis and do not differ in patients with primary and secondary vascular reconstruction.

V11b - 25

AN ALTERNATIVE METHOD FOR REDOUNDING SAPHENOUS VEIN GRAFT PATENCY AT INFRAGENICULAR REVASCULARIZATION: PTFE PROTECTED SAPHENOUS VEIN

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Objective: Patients with critical limb ischemia, infragenicular revascularization and obtaining patency of the grafts are important for amputation and wound healing. Graft patency is based on its material, surrounding tissues of graft pathway and anastomoses techniques. We analyzed the patency of PTFE covered below knee saphenous graft.
Methods: In the last year, 247 patients applied to our hospital with lower limb ischemia and 17 of them were offered below knee by-pass procedures with saphenous vein graft. Only anterior tibial artery (ATA) was by-passed in 2 patients, posterior tibial artery in 13 patients, both of them were bypassed in 2 patients by using separate saphenous vein grafts through the intresseous membrane. Ringed PTFE graft was used to protect saphenous vein graft from possible compressive effects of surrounding anatomical structures in graft pathway in 4 patients. Saphenous veins grafts covered with the 8 mm ringed PTFE graft in pathways from popliteal fossa to the distal anastomotic sites. Another PTFE graft was used if ATA had been by-passed through interosseous membrane in the same session. We cut PTFE graft longitudinally and wrapped over saphenous vein and sutured with each other in a few areas then sutured to the neighboring facia so that the graft couldn't move with muscles actions.
Results: In 11 of 17 patients including PTFE covered saphenous vein, by-passed ones were asymptomatic at the 6th month follow-up. In patients with PTFE covered saphenous vein graft, 3 of 5 saphenous veins found patent in CT angiography.
Conclusion: Superiority of saphenous vein graft patency is known in blow knee by-pass procedures. Especially for distal arteries of tibia and below 4 mm size arteries, we prefer saphenous graft. Nature of saphenous vein graft can be affected when patients walk due to movements of tendons and muscles around it. Traction of these structures in their movements makes compress to the graft and this chronic trauma leads endothelial injury and finally stasis early graft occlusion. So, we can use PTFE graft to prevent this side effect. Although we have small number of patients, the results are satisfactory. However, we need to keep in mind that pressure effects of the anatomical structures are not the only factor for obtaining distal by-pass surgery with saphenous veins.

V11b - 26

THE MID-TERM RESULTS OF BRACHIOBASILIC FISTULAS CREATED BY SUPERFICIALIZING OF THE BASILIC VEINS IN HAEMODIALLLYSIS PATIENTS

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Objective: The most preferable vascular access in haemodialysis patients is arteriovenous fistulas (AVF). Scientific and technical developments in haemodialysis let the patients live for long years. But inability to provide vascular access may cause high mortality and morbidity. Arteriovenous graft implantations are the operations that must be delayed as soon as possible because of high infection rates and low patency rates. The last choice to create an autogen AVF in one arm of a patient is to create brachiobasilic fistulas which are made by superficializing the basilic vein. These fistulas give the patient a chance to have an autogen venous access without using any grafts.
Methods: Between November 2001 and November 2004, 680 fistulas have been created to 604 patients by the same cardiovascular surgeon. In the same period, brachiobasilic fistulas were created to 77 patients (45 male,

mean age 49+12) by superficializing the basilic vein. All these operations were made under local anesthesia. At first an anastomosis was made between brachial artery and basilic vein. Then second incision to the proximal part of the anastomosis was made to superficialize the basilic vein (in approximately 10–15 cm long).
Results: In early periods, two early thrombosis and one haemorrage that required revision developed. In long-term follow-up; changing from 4 months to 36 months; 8 late thrombosis, 2 pseudoaaneurysms and 1 rupture developed. Other fistulas were normofunctional.
Conclusion: Brachiobasilic fistulas which are made by superficializng the basilic vein is the chance of creating autogen AVF that must be made before greft implantations in haemodalysis patients.

V11b - 27
ADVENTITIAL CYST OF THE POPLITEAL ARTERY AND ITS RELATION TO THE KNEE JOINT. HISTOLOGY AND MAGNETIC RESONANCE IMAGING
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Objective: Introduction. Adventitial cysts of the popliteal artery are an infrequent cause of ischaemic symptoms in the lower extremities. It is, however, important to take them into account in the differential diagnosis in young individuals with intermittent claudication in the calf muscles. Although the causation and pathogenesis of this condition remain uncertain, a correct diagnosis allows the specialist to restore normal blood flow in the extremity.
Methods: Case report. We studied the case of a 57-year-old patient with intermittent claudication and an adventitial cyst of the popliteal artery.
Results: Which magnetic resonance imaging showed to be communicating with the knee joint, and this was later confirmed by surgery.
Conclusion: Use of magnetic resonance imaging as a diagnostic test was able to clearly demonstrate the existence of this pathology and lend support to the synovial hypothesis.

V11b - 28
DACRON MESH WRAPPING OF AN ABDOMINAL AORTIC ANEURYSM – A TREATMENT OF CHOICE OR ACT OF DESPAIR?
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Objective: In 1948, Rea and Poppe wrapped the anterolateral surface of an aneurysm with reactive cellophane. They hoped the material would induce fibrosis within the surrounding tissues, causing reinforcement of the aneurysm wall and limiting its expansion. The technique remains in use, although rather sporadically, and mainly in high-risk patients who cannot be selected for endovascular repair.
Methods: From 1996 to 2004, twenty-four procedures of dacron wrapping of abdominal aortic aneurysms were performed. Patients selected for AAA wrapping procedure were high-risk surgical candidates with low left ventricular ejection fraction <35%. All required urgent intervention due to the symptomatic character of the aneurysm or fast growth of its diameter (> 10 mm/year). They had been previously disqualified as candidates for conventional repair by a consulting cardiologist and anaesthesiologist. Since 2000, aneurysm wrapping has been used in patients unsuitable for endovascular approach due to unfavourable anatomical features.
Results: The mean duration of surgery varied between 50 and 140 min. Intraoperative blood loss on average was 408 ml. Mean hospital stay was 8.53 days. Myocardial infarction was found in five of our patients (20.8%). Four (16.6%) developed circulatory insufficiency with considerable drop of blood pressure and, in consequence, institution of catecholamine treatment. Renal insufficiency observed prior to the procedure in one patient exacerbated after surgery, with serum creatinine reaching 2.45 mg/dl. Due to respiratory insufficiency 8 patients (33.3%) required mechanical ventilation continuing for 4 to 18 h. Perioperative mortality rate was 16%. Following partial aneurysm wrapping, a marked increase of aneurysm diameter was found on check-up CT in two cases; one aneurysm rupture resulted.
Conclusion: Aneurysm wrapping carries a rather insignificant risk to the patient. Aortic clamping can be avoided, which is mainly responsible for cardiological complications in patients with cardiovascular disease and low left ventricular ejection fraction (EF LV). Until further refinements in endograft technology are made and introduced to practice, such as fenestrated stent-grafts, complete dacron wrapping remains a method of relatively effective and safe AAA repair in high-risk patients disqualified as candidates for conventional open repair and stent-grafting.

V11b - 29
OUTCOME AND MOBILITY AT ONE YEAR IN UNILATERAL LOWER LIMB AMPUTEES
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Objective: The aim of the present retrospective audit was to assess post-operative mobility, an important indicator of quality of life in amputees, one year after above knee (AKA) or below knee amputation (BKA) in a district general hospital.
Methods: Mobility at one year post operation and other risk factors for peripheral vascular disease were evaluated on all patients who underwent AKA or BKA over a five year period (November 1998 – January 2004).
Results: A total of 71 patients were reviewed (AKA n = 33, BKA n = 38). The overall mortality at one year was 15.5% (11/71) with 18.2% (2/11) in the BKA-Group and 81.8% (9/11) in the AKA-Group [P = 0.012]. The remaining alive 60 patients (AKA n = 24, BKA n = 36) had an age range of 31-91 years (overall mean age 66.0 yrs: AKA-Group 66.7 yrs vs. 70.1yrs in the BKA-Group, 37 male: 23 female). Eleven out of the twenty-four patients (45.8%) who underwent AKA were mobile independently or with a walking stick compared to 55.5% (20/36) in the BKA group (P = 0.46). Eleven patients (45.8%) were diabetic in the AKA-Group compared to twenty patients (55.5%) in the BKA-Group (P = 0.46). Age did not affect type of amputation (P = 0.66) or mobility (P = 0.73).
Conclusion: The high mortality in the AKA-Group reflects the tendency to perform an AKA in patients with a significant co-morbidity. Furthermore, the present study demonstrates that there is no difference in mobility outcome following BKA or AKA at one year. This may have important implications in choice of lower limb amputation.

V11b - 30
DETECTION OF ENDOLEAKS AFTER ENDOVASCULAR REPAIR OF ABDOMINAL AORTIC ANEURYSM: VALUE OF THE COMPUTATIONAL MODELING PROGRAM BASED IN ECODOPPLER ULTRASOUND
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Objective: Persistent perigraft flow within an abdominal aortic aneurysm, also termed "endoleak", remains the most common complication of endovascular graft placement. Ultrasound is cost-effective, easily available and transportable, and has found increasing use in many screening programmes for abdominal aortic aneurysms. Due to its extensive use both in screening programmes and in routine abdominal diagnosis, an increasing number of abdominal aortic aneurysms are diagnosed. However the follow-up of the endovascular treatment of abdominal aortic aneurysm is based in others procedures as computed tomography scan o angiography.
Methods: A novel computer-based method was developed based on objects´ interpretations of Doppler ultrasound scan images. With software specifically designed for this study examine the images of the Doppler ultrasound scan with a special specific data correspondent of endoleaks.
Results: Doppler ultrasound scan images results a excellent method for evaluation the differents situacions in the aneurysm sac treated with EVAR and evaluation of the the endoleaks.
Conclusion: Computer ultrasound method should be regarded as the most practical, non-invasive method for the assessment of evaluation of abdominal aortic aneurysm treated with endovascular methods.

11.00-13.00
MAY 14, 2006 4TH CONGRESS DAY

13TH VASCULAR SCIENTIFIC SESSION
RESEARCH AND MISCELLANEOUS

V13 - 1

MMP-9 PLASMATIC CONCENTRATIONS ARE A RELIABLE MARKER IN THE PREOPERATORY EVALUATION OF THE ATHEROSCLEROTIC CAROTID PLAQUES

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Objective: Many studies have been undertaken in order to know better the mechanisms that lead to the destabilitation of the carotid plaques and to cerebral ischemic events. There are evidences that an increased metalloproteinases (MMP) activity plays an important role in the ulceration or rupture of the atherosclerotic plaque and this may determine acute neurologic events. The aim of this study is to find a correlation, in a consecutive series of patients that underwent internal carotid tromboendoarterectomy, between MMP-2, MMP-9 and TIMP-2 plasmatic values and clinical and strumental evidences. We also follow the plasma metalloproteinases modifications searching a direct correlation between those markers and the disease presence.
Methods: The MMP-9, MMP-2 and TIMP-2 levels in the plasma of 15 patients were measured 2 h before they underwent internal carotid tromboendoarterectomy and the measurements were repeated one week and one month after surgery. We also determinate by immunofluorescence the MMP-9 expression in the carotid plaque tissue after tromboendoarterectomy.
Results: Our study shows that the basal plasmatic MMP-9 concentration shows a direct correlation with the MMP-9 expression in the plaque tissue. MMP-9 plasmatic levels are elevated in the patients that underwent tromboendoarterectomy compared to the group control (23.8 ng/ml vs. 11.4 ng/ml; $P<0.05$) The data confirm that MMP-9 values have not a direct correlation with the traditional risk factors (Hypertension, smoke, diabete and ipercolesterolemy) and with a pregresse miocardial ischemia. MMP-9 was also increased in Patients with an ultrasonographic evidence of an instable carotid plaque (26.2 ng/ml vs. 16.8 ng/ml; P = NS). Increased MMP-9 plasmatic levels were found in patients simptomatic for cerebral ischemia (29.5 ng/ml vs. 18.5 ng/ml; P = NS) and those differences became significant in patients that show previous ischemic lesions at the cerebral TC or RM (27.5 ng/ml vs. 16.1 ng/ml; $P<0.05$). The study reveals how MMP-9 plasmatic concentration drastically reduces one months after tromboendoarterectomy (23.8 ng/ml vs. 6.9 ng/ml; $P<0.001$), while remain similar at one week (23.8 ng/ml vs. 23.4 ng/ml; P = NS). MMP-2 and TIMP-2 didn't show significant variations between the preoperative and one week/ one months measurement.
Conclusion: Our results demonstrate that MMP-9 plasmatic concentration is an accurate carotid plaque instability index and can be safely used as an important laboratory marker in the preoperatory evaluation of a carotid stenosis correction.

V13 - 2

ENDOVASCULAR REPAIR OF TRAUMATIC INJURIES OF THE SUBCLAVIAN AND AXILLARY ARTERIES

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Objective: Injury to the subclavian and axillary arteries is uncommon. Standard surgical techniques require wide exposure and dissection in traumatized areas which is often challenging and associated with significant morbidity, and mortality ranges from 5 to 30%. We report our experience with the endovascular treatment of these injuries.
Methods: We retrospectively studied patients with blunt or penetrating (including iatrogenic) injuries to the subclavian or axillary artery between January 2000 and September 2004. Demographic data, mechanism of injury, concomitant injuries, angiographic findings, and treatment method and outcome were recorded. Nine patients with injury to the subclavian or axillary artery were seen at our institution during the study. Two patients underwent interventions, 7 patients had lesions amenable to endovascular repair.
Results: Immediate success was obtained in all procedures (100%). All patients continue to have patent grafts with a follow-up ranging from 3 to 48 months (mean 22.6 months). The procedurerelated complication was the need for a brachial artery pseudoaneurismectomy at the site of device insertion in one patient (14.7%). None of the patient developed a stent fracture.
Conclusion: Endovascular stent-grafts offer an effective, less invasive alternative to standard techniques in treating traumatic arterial lesions, resulting in shorter procedure time and less blood loss than previously reported.

V13 - 3

LONG-TERM OUTCOME FOLLOWING ENDOSCOPIC THORACIC SYMPATHECTOMY

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Objective: Endoscopic thoracic sympathectomy has become the preferred method for treating severe primary hyperhidrosis. Our study aimed at evaluating short and long-term outcome of primary symptoms, complications and patient satisfaction following thoracic sympathectomy in our unit.
Methods: Retrospective case note review of all patients undergoing endoscopic thoracic sympathectomy between 1998 and 2005. A questionnaire was sent to these patients to find out longterm outcome and patient satisfaction.
Results: The eight-year results were analysed. One hundred and one procedures were performed in 98 patients (including three re-do procedures). There were 67 females with a mean age of 25 and 34 males with a mean age of 34. The most common indications were isolated hyperhidrosis (24 patients) and combined hyperhidrosis (24 patients). Bilateral T23 sympathectomy was the most common operation performed at 45.5%. There were no major immediate postoperative complications. The questionnaire response rate was 55%. In 79% of the respondents the symptoms were better compared to 31% in whom symptoms became worse following the operation. Compensatory sweating was observed in 78% immediately after the procedure and this figure rose to 89% in the long-term. Despite this 69% of the respondents felt the operation was worth doing.
Conclusion: We believe the rate of compensatory sweating following endoscopic thoracic sympathectomy is very high and may be under-reported in the literature. Despite these findings we feel that the high level of patient satisfaction may be attributed to detailed preoperative counselling. This in turn leads to a realistic and positive outcome for the patient.

V13 - 4

DETECTION OF ABDOMINAL DEEP GRAFT INFECTION: COMPARISON OF MRI AND IN-LABELED WBCS

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Objective: Infected abdominal aortic grafts rank as one of the most severe complications of vascular surgery, with high mortality and morbidity. The incidence of deep infection after prosthetic aortic reconstruction is 1-6%. [1.2.3] The Diagnosis of deep prosthetic vascular graft infection can be difficult. The symptoms are usually non-specific and their detection by radiographic methods, such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI) and Leukocyte-imaging is difficult. The purpose of this study was to evaluate the predictive value (PV) of Indium-111 labelled WBCS against MRI in patients, who suspected for intracavitary vascular graft infection.
Methods: The study was done retrospectively between Jan. 1994 to Jan. 2004. From 40 suspected patients, 36 cases of deep graft infection were identified intra-operatively. The diagnosis "deep graft-infection" was based on clinical sign, microbiological and histological examination, MRI & Leukocytes imaging. The golden standard was lack of graft incorporation, observed intra-operatively.
Results: Fifty-eight In-111 labelled WBC and 59 MRI were performed in suspected patient. The specificity of the MRI was 97% with a positive PV (PPV) = 95% (95% CI: 84–105%) contra 85% with a positive PV (PPV) = 80% (95% CI: 62–96%) for In-111-labelled WBC. The sensitivity of the MRI for infected graft was 68% with a negative PV=80% (95% CI: 68–92%) Contra 73% with a negative PV=82% (95% CI: 69–94%) for In-111-labeled WBC.
Conclusion: The MRI showed a better positive (PV) to detect intracavitary vascular infection, compared with 111-In leukocytes imaging. MRI can be used in detecting of deep vascular infection.

V13 - 5

ENDOVASCULAR RECONSTRUCTION FOR AORTOILIAC OBSTRUCTIVE DISEASE

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Objective: Aortoiliac obstructive disease has been traditionally treated using endarterectomy and/or a surgical bypass grafting procedure. With the advent of endovascular approach, "kissing-stents" technique has been proposed for to reconstruct the aortoiliac bifurcation for complex aorto-iliac lesions. We present the mid-term results of 35 patients with aortoiliac obstructive disease who underwent endovascular repair of the infrarenal aorta and/or aorto-iliac bifurcation.
Methods: Between March 2001 and March 2005, a total of 36 patients with a mean age of 65±10 years underwent endovascular treatment of occlusive atherosclerotic disease at the infrarenal aorta and/or common iliac arteries. Lesions were classified C (n = 28) and D (n = 8), accordingly to the TASC classification. Intra-aortic thrombolysis was used to reveal underlying aortic or iliac stenoses, and initially instituted in 4 occlusions (11.4%). The bifurcation was then eventually reconstructed using bilateral stents placed with the kissing technique. Clinical examination and duplex scans or CTangiography were performed at discharge and 1, 6, and 12 months after the procedure, with yearly studies thereafter.
Results: Kissing-stents technique was selectively used in 26 cases (72.2%); the remainder cases were treated with kissing-balloons. Mean ABPI increased from 0.69±0.26 to 0.82±0.28. Major complications occurred in 3 out of 72 groins (4.1%), and included hematoma (n = 2) and pseudoaneurysm (n = 1). Patency rate at discharge was confirmed to be 100%, by duplex-ultrasound. Overall, mean duration of hospitalisation was 3.7±2.3 days (range 1-14 days; median 3). Mean follow-up was 29.3 months (range 3-60; median 24), during which no patients were lost to follow-up: one patient died three months after the procedure for acute respiratory failure. Duplex and/or CT-A examination detected 4 re-occlusions (early (n = 1), late (n = 3); overall, 11%). Lytic therapy successfully restored the occluded vessels, revealing three re-stenoses: two were treated with kissing-stents, one patient with catheter-based thrombectomy and angioplasty. No further recurrent re-stenoses were detected in the following follow-up period. Primary patency rates at 12, 24, and 36 months were 93%, 87%, and 76%, respectively.
Conclusion: Endovascular treatment seems to be feasible, safe and effective: early and 2-years follow-up data in this study was encouraging with clinical improvement in all patients and high rates of patency. Where kissing-stents fail, surgery remains an option. Based on this experience, although we do not unequivocally support the replacement of aorto-femoral bypass surgery by percutaneous revascularization, the procedure-related mortality and morbidity are lower than those reported for conventional repair.

V13 - 6

COMPARISON OF TRANSPERITONEAL AND RETROPERITONEAL APPROACHES IN ABDOMINAL AORTIC SURGERY

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Objective: The aim of this study is to compare the retroperitoneal and transperitoneal approaches in aortic surgery by demonstrating the advantages and disadvantages of the retroperitoneal approach technique.
Methods: From December 2003 to March 2005, 80 patients who had undergone aortic surgery for either abdominal aortic aneurysm or aortiliac occlusive disease, were studied retrospectively. The patients were divided into two equal groups as retroperitoneally (40 patients) and transperitoneally (40 patients) approached, and their clinical features, premorbidity status, intraoperative and postoperative data were analyzed and compared.
Results: Return of bowel functions, oral feeding time, duration of the operation, intensive care unit and hospital stay were significiantly shorter in the patients operated with the retroperitoneal approach technique. However, aortic cross clamp time was statistically longer in the retroperitoneal approach group. Even though significance could not be proven other parameters such as total transfusion requirement in the first 24 h, postoperative pulmonary problems, wound complications, incisional hernia, intensive care unit requirement, mortality rate, and time of discharge also favoured the retroperitoneal approach.
Conclusion: Even though in different studies various advantages and disadvantages of the both methods have been established we believe retroperitoneal approach to the aorta seems to be a more favourable method for the treatment of aortic pathologies.

V13 - 7

AAA SURGICAL REPAIR IN PATIENTS WITH A SIMULTANEOUS CANCER

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Objective: This paper address the problem of endovascular AAA repair in oncologic patients, a relatively frequent situation (3.9–12.6% of cases). In 1967 Szilagyi introduced a classification in 5 categories aimed to identify perfect timing for surgery, but nowdays it has lost its meaning in times of EVAR.
Methods: We reviewed 10 patients treated as a staged procedure, by EVAR since 2000, bearing both a AAA and a cancer. Three patients had bladder cancer, four a GI cancer, one Lung, one a NH Lymphoma, and one a breast cancer. Age was comprised between 62 and 81 years, with a prevalence of male patients. All patients were judged ASA II to IV risk class. All patients were unfit for open treatment of AAA according to EUROSTAR criteria and fit for endovascular graft. All were operated in general anesthesia trhough a bilateral femoral cutdown. A Talent endograft was used in all cases. In only one case an hypogastric artery was excluded. All patients were operated before (Szilagyi class II) cancer treatment.
Results: No mortality or emergency sugical conversion was necessary. In 60% of cases the graft access was sutured with a Dacron patch. No early graft related complication was noted. Only one patient had a long lasting (30 days) groin limphatic fistula. All patients were dismissed on the second or third post-procedural day.
Conclusion: Although some authors are favourable to simultaneous surgical treatment, EVAR had changed the attitude toward neoplastic patients with a simultaneous AAA. EVAR allows prompt AAA repair with minimal general risk, with fast recover, and poor infective risk in case of staged abdominal operation on GI or urinary tract. We believe that EVAR must be performed first because some chemiotherapic drugs may be toxic for endothelium, increase volemia and add risk of rupture for the AAA. Reduced life expectancy in these patients overcomes the problem of costs and concerne for long term follow-up.

V13 - 8

MANAGEMENT AND FOLLOW-UP OF DIFFICULT ABDOMINAL AORTIC ANEURYSMS (AAA)

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Objective: Articles about "difficult aortas" reported prevalently deal with the association of AAA with cancer, horseshoe-kidney, juxtarenal (JRA) and inflammatory aneurysms (IAAA), but treat even technical difficulties, and complications. The incidence of difficult aortas will relatively increase as simple anatomic conditions can now be treated by endovascular approach. The purpose of this study was to evaluate early and late results of open surgical treatment of "difficult" AAA.
Methods: Among the records of 553 patients who underwent elective treatment for AAA between 1996 and 2003, the operative reports of 49 (8.9%) that were classified as "difficult aortas" have been reviewed. All the p. had a prospective ultrasound evaluation in the follow-up.
Results: Nobody died after surgery. Twenty-seven p. had a JRA (2 associated with renal artery disease, 2 IAAA and 1 after aortic graft), 5 were IAAA, 3 had associated renal artery stenosis and 2 had a horseshoe kidney. Other 3 had mural haematomas and ulcers in the aneurysm neck, 4 had dissections or heavy calcifications of distal anastomosis, other difficulties in the remaining cases. Almost all the p. had a type C-JRA following the Brancherau's classification, so a supraceliac or suprarenal clamping was necessary in only 12 cases. In p. with a pathological neck the graft was sutured near the renal outlet, within the aorta, with external polyester support or pledgets and with a further external wrapping (2 p). At 2 year mean follow-up, 1 p. presented a pseudo-aneurysm treated with endovascular graft, 1 p. (supraortic clamping) presented a 44 mm proximal dilatation associated to 5 cm ascending aortic aneurysm, other proximal 32-33 mm infrarenal aortic dilatation have been observed in 2 p. and a tapered 22-40 mm aorta in the last p. All were unchanged at periodic controls. One p. presented a distal aortic rupture after a tube graft in the 1st post-operative day, treated with a bifurcated graft. The 2 patients who had the external wrapping at the proximal

anastomosis showed a normal aorta at CTscan performed respectively 2 and 6 years after surgery.
Conclusion: EVAR will increase the incidence of difficult aortas to treat with open surgery. Preoperative complete and appropriate imaging are essential to formulate a sensible plan before operation; the choice of a suprarenal or supraceliac clamping, the division end reconstruction of the left renal vein, or a combination of extraperitoneal approach with a supraceliac clamping can convert a complex situation into a relatively simple one.

V13 - 9

PROGNOSTIC OF CAROTID ENDARTERIECTOMY, A COMPARISON BETWEEN PATIENTS WITH AND WITHOUT CAROTID CONTA LATERAL OCCLUSION

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Objective: Patients presenting a significative carotid stenosis with a contra lateral occlusion are considering at risk for neurological complication during surgery. This affirmation is more and more controversy. In this work we evaluated the risk of neurological damage at one month post surgery in two groups, one with and another without contra lateral carotid occlusion.
Methods: All carotid operations of our center between the 1st November 1989 and the 31 December 1995 were reviewed. Exclusion criteria were: bilateral significant stenosis, combined coronary and carotid surgery, and non-classical carotid surgery. Two groups were constituted one group control (patients with a significative carotid stenosis) and another group occluded (patients with a significative carotid stenosis and an occlusion of the contra lateral carotid). All patients were operated by a longitudinal arteriotomy under a general anaesthesia and an electroencephalogram monitoring. In the two groups, we evaluated different parameters like the percentage of stenosis on the surgical side, risk factors, number of shunting and number neurological events at 4 weeks after surgery.
Results: The control group (120 patients) and the group occluded (19 patients) were homogeny for the different parameters. The follow up at one month was 94%. The rate of shunting is not statistically different (5.0 against 10.5% $P = 0.6665$). The rate of neurological events at 1 month of surgery (3.3% against 10.5% $P = 0.4088$) is not statistically different. The neurological mortality at 1 month is 0.8% in the control group and 0% in the occluded group.
Conclusions: The risk of neurological events during carotid surgery in patients with a contra lateral carotid occlusion is not statistically higher than in single carotid stenosis. The risk of neurological events during carotid surgery in patients with a contra lateral carotid occlusion is not statistically higher than in single carotid stenosis.

11.00-13.00
MAY 14, 2006 4TH CONGRESS DAY

14TH VASCULAR SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

V14 - 1
THE REASONS OF EARLY INFRINGEMENTS OF BRAIN BLOOD CIRCULATION AT PATIENTS AFTER CAROTIDIS ENDARTERECTOMY
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Objective: The purpose of work: studying of system of hemostasis at patients after operation carotides endarterectomy (CEAE) depending on current of the early postoperative period.
Methods: It is surveyed 36 patients by whom operation unilateral CEAE was executed. All patients intraoperatively received nonfractioned heparin in a doze of weight of 80–100 ME/kg. Depending on current of the early postoperative period patients were shared into groups: group 1–12 pts at whom at the first o'clock after operation were developed infringements of brain blood circulation; group 2-24 pts with the not complicated current. Studied a condition plasmic and thrombocytic hemostasis, system of natural anticoagulants and fibrinolysis before, in the end, in 6 h and for 1 day after operation CEAE.
Results: Before operation all patients had no significant changes of parameters of hemostasis. At the end of operation of group 1 and 2 did not differ among themselves on the basic parameters of hemostasis. In group 1 the expressed hyperaggregation of thrombocytic came to light. In 6 h after operation in group 1 significantly smaller values of ACT, time of blood's clotting (TBC), INR, authentically big size APTT and the expressed braking fibrinolytic activity on a background of hyperaggregation of thrombocytes were marked. For 1 day after operation in group 1 were kept authentically smaller size TBC, significant decrease is marked both in comparison with the previous stages of supervision, and in comparison with group 2, APTT, authentically smaller activity ?? III and fibrinolysis was registered. ADF-induced aggregation of thrombocytes in group 1 at this stage was much higher, than in group 2. Hyperaggregation of thrombocytes at ill groups 1, was the first display of hypercoagulation registered in further. Decreasing APTT and braking XIIa-dependent fibrinolysis could be display coagulopathy consumption. Authentically greater value APTT was reflection compensatoring emission of endogenous heparin. For 1 day after operation in group 1 the expressed consumption endogenous heparin was marked, is significant the smaller activity AT III, essential braking XIIa-dependent fibrinolysis, the expressed hyperaggregation of thrombocytes was kept.
Conclusion: Expressiveness and prevalence of atherosclerotic process in brain vessels alongside with hyperaggregation of thrombocytes result in amplification thrombogenic potential and to increase of risk thrombotic complications the nearest hours after operation. Therapy of antiaggerants and anticoagulants should be begun still before of operation and to renew right after operations.

V14 - 2
COMBINING ENDOVASCULAR REPAIR OF AORTIC DISSECTION AND RENAL REVASCULARIZATION
Yamada F., Castro M.T., Nóbrega V.A.J., Terci W., Petterle H.P., Dietrich R.A., Iwasaki L.S.M., Manzioni R., Rabboni E., Diniz Jr. G.J.
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Objective: Report a case of the aortic dissection in patient with Marfan's syndrome accomplished a combining endovascular repair and splenectomy and splenorenal anastomosis (renal revascularization).
Methods: Retrospective review, case report.
Results: Patient masculine, 54-years-old, with Marfan's syndrome, previous right nephrectomy 25 years ago, reporting thoracic and lumbar pain after defecation. At 08/01/2005, the patient accomplished a computed tomography that showed abdominal aortic dissection, the entry site down of the origin of the superior mesenteric artery and extended to until iliac arteries, without left renal artery exclusion. The patient accomplished laparotomy, splenectomy and the left renal artery was anastomosed end-to-end to the splenic artery. Simultaneously to surgery, the brachial artery is accessed to percutaneous puncture and guidewire was inserted and directed to true lumen until femoral artery. The exposure of the guidewire is obtained with open access of the right iliac artery. The endograft in inserted down superior mesenteric artery closed left renal artery. The arteriography accomplished after surgery showed false lumen obliterated and splenorenal bypass patent. The period in-patient was 21 days, 9 days postoperative and 4 days in intensive care unit.
Conclusion: The renal revascularization in combination with endovascular repair is a effective treatment method and leads to a clear reduction of perioperative morbidity and mortality.

V14 - 3
EMERGENCY SURGICAL TREATMENT OF THE EKSTRACRANIAL VASCULAR INJURIES
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Objective: Carotid artery injuries can cause serious morbidities and mortalities. This potential can develop in minutes and in early hours. The main importance for this serious injury is the necessity of urgent intervention. For this reason we found it appropriate to present our 11 urgent carotid artery injury experiences.
Methods: The 11 cases those applied to our emergency service and those were operated between March 1998 and February 2005 was included in this study. Postero anterior and lateral thoracic radiograms have been taken from all of patients. For 5 of our elective patient's carotid artery doppler ultrasonography and for three of our elective patients aortic angiography have been performed. Conventional cervical computerized tomography was performed for the patients who had mediastinal heamatom. Under intratracheal general anesthesia extracranial carotid artery has been reached by a longitudinal incision that was performed medial of sternocleidomastoid muscle. The surgical interventions those have been performed for 11 patients have been abstracted.
Results: Nine of our patients were male and two of our patients were female. The ages were at 16 54 interval. Two of our patients were taken to operation with hypovolemic shock and for one of these patients Gott shunt has been used while the stumph systolic pressure is under 50 mmHg. Four of our patients had vena jugularis interna injury and these had primer repair. Mean cross clamp time was 8 min (4–18 min). Two of our patients had arteriovenous fistulas and these had no bleeding and only minimal hematom interestingly. These patients were taken to operation with murmur by auscultation. The gross hematom was the cause to respiratory stress by pressing the trachea. The mean ambulatory time to emergency service was 45 min.(20-120 min).
Conclusion: One patient had left hemiplegia as complication. The other patients discharged postoperative 5th day. There was not any complication in our patients. In our opinion the appropriate method for active bleeding patients or for the patients with murmur by the auscultation those had the injury that is related to cervical main vascular area is urgent operation without need of further investigation, and for the hemodynamically stable patients elective operation with further investigation.

V14 - 4
COMPARATIVE STUDY OF ENDOVASCULAR THERAPY VERSUS ENDARTERECTOMY IN THE SYPTOMATIC STENOSIS OF THE INTERNAL CAROTID ARTERY
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Objective: The aim of the study to compare perioperative and late results of the endovascular therapy of internal carotid artery (ICA) stenosis and open surgery in patients with critical stenosis.
Methods: Endarterectomy was performed in 184 patients (118 males and 66 females) in the age 5876 (mean 65). The procedure duration was 42–82 min (mean 61 min). The patients were discharged from a hospital after 4–27 days (mean 7 days). The endovascular therapy underwent 174 patients (111 males and 63 females) in the age 63-81 (mean 74). The procedure duration was 22–82 min (mean 39 min). The patients were discharged from a hospital after 2–24 days (mean 3.4 days). In major part of the endovascular group an neuroprotection was applied.
Results: The ischaemic stroke during the procedure occurred in 6 (3.4%) patients in endovascular group, and in another 12 patients (6.9%) symptoms of TIA occurred. Perioperative mortality rate was 0.6%. A number of bradycardia and hypotonia episodes were observed. In the patients who underwent an open

surgery, 8 (4.3%) cases of the ischemic stroke occurred in which two with fatal outcome. In 18 patients a TIA was diagnosed and in one myocardial infarction took place. No statistically significant differences in the ischemic stroke occurrence and mortality rate were found between the groups. In the 12 month follow-up no statistically significant differences were found in late complications rate. In endovascular group 7 patients and in surgery group 9 died during the follow-up, mortality rate was 3.7% and 5.17% in the endovascular and surgical group respectively. In the endovascular (2.3%) as well as in the surgical group (6.3%) the cases of asymptomatic restenosis up to 50% occurred.
Conclusion: There are no differences in the perioperative and late results in 12 month follow-up between an endovascular and endarterectomy group of the patients with elevated surgery risk who underwent a therapy of critical ICA stenosis.

V14 - 5
CAROTID STENOSIS IN HIGH RISK PATIENTS. THE SAPPHIRE STUDY VERSUS A DECISION ANALYSIS. WHICH IS THE BEST THERAPEUTIC OPTION?
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Introduction: In the results from the SAPPHIRE study on high surgical risk patients with carotid stenosis there are no differences between carotid stent-angioplasty (CSA) and carotid endarterectomy (CEA).
Aims: The aim of this study was to analyse the cost-effectiveness of these two interventions based on the data from the above-mentioned study and on our own experience in carotid surgery.
Methods: We evaluated 108 CSA carried out between 1999 and 2003. The morbidity and mortality rates in the subgroup of high risk patients, according to the criteria used in the SAPPHIRE study, were analysed according to whether they were symptomatic or asymptomatic. Data concerning endovascular treatment were taken from the literature. A cost-effectiveness study was conducted considering four possible perioperative events: absence of sequelae, AMI, established CVA and death. The computer software package DATAPro was used after fitting the decision to the theoretical quality of life for each of these groups. Cost-effectiveness was estimated based on the cost of each procedure.
Results: Of the 108 patients, 41 (37.96%) belonged to the high risk subgroup; 46.3% of them were asymptomatic and 53.7% were symptomatic. In the 30 days following the intervention, one CVA (5.2%) and one AMI (4.5%) were observed. No deaths occurred. The decision analysis for symptomatic patients showed CEA to be the most effective therapeutic option. Similar results were obtained for asymptomatic patients. The average cost for CEA was 3.963 € and rose to 5,158 € in the case of CSA.
Conclusion: In our study, CEA is the preferred technique in high risk patients owing to its having a better cost-benefit ratio.

V14 - 6
PROPHYLAXIS OF VASCULAR GRAFT INFECTION: LONG-TERM RESULTS OF A PROSPECTIVE STUDY
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Objective: Graft infection is a severe complication of vascular surgery followed by a high incidence of amputation and death. To reduce this complication, antibiotic prophylaxis has been adopted all over the world, nevertheless their incidence ranges between 0.5% in the abdominal reconstruction, to reach 1–2% in the aorto-femoral revascularization and 5-8% after axillo-femoral bypass. The guidelines for prevention of surgical site infection (SSI) recommend many actions to reduce this complications, not being antiobiotic prophylaxis the only one important. The purpose of this study was to evaluate the results of a protocol to prevent the graft infection.
Methods: The patients operated between 1997 and 2003 have been treated with 6 different antibiotic protocols, and followed prospectively. The protocol treatment have been designed considering the low prophylactic action of 2nd generation cephalosporins, the increased resistance of common pathogen found in vascular graft to these antibiotics, the scarce results of some single-dose treatment with vancomycin and of multiple-dose administration of cephalosporins, and the high incidence of coagulase-negative staphylococci in late infections.
Results: At 2.4 years mean follow-up, the incidence of graft infection was 0.66% (6 early and 7 late); 1 patients presented infection in 2 sites and another patient had 2 recurrent infection. Mean time between graft insertion and infection was 6.6 months. Gangrene, emergency and reoperation were the more common risk factors even in our sample. Prolonged duration of operation and redo operation without repeated antibiotic administration was probably the most important cofactor. The more frequent pathogen was staphylococcus aureus (4 cases, 2 MRSA); in 3 cases the culture was negative.
Conclusion: The incidence of graft infection in our sample was lower than mean incidence reported in the literature and about halved if compared to that observed before this protocol. In particular there were no infections at aortic level, 1% in aorto-femoral reconstructions, 5.4% in femoro-distal bypas, excluding vein graft and 1.7% in extra-anatomic bypass. The total incidence of graft infections in vascular reconstructions involving the femoral bifurcation was 1.04%. In our sample, only 1 of the isolated pathogen was sensitive to cephalotin, while 4/6 were sensitive to gentamycin. In conclusion our results seems to demonstrate that a multi-dose treatment with the association of clindamycin and gentamycin and the utilization of correct preoperative procedures, gives a low incidence of vascular graft infections than using standard guidelines recommendations, and suggest the need for new prospective randomized studies.

V14 - 7
THROMBOLYSIS IN AORTIC ENDOGRAFT OCCLUSION
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Objective: Case report of the thrombolysis in aortic endograft occlusion.
Methods: Retrospective review.
Results: J.T., 59-years-old, patient with coronary insufficienty and left ventricular ejection fraction 35%, 3 previous myocardial infarction and aortic infrarenal abdominal aneurysm with 60 mm in diameter, underwent endovascular aortic repair and femoral artery patch angioplasty. Seventeen day postoperative, patient developed rest pain and pallor in left lower limb. Digital angiography showed occlusion of the left limb of the endograft. The approach was from left brachial artery using 5 F pigtail catheters that was introduced in left limb of the endograft. The infusion catheter was inserted several centimeters into the thrombus. Agent utilized was Alteplase 50 mg continuous infusion for one hour. Control angiography demonstrated dissolution of thrombus; endograft was patent and left iliofemoral stenoses. Conventional management of abdominal aortic aneurysm is by open repair and is associated with a mortality rate of 2–6%. Endovascular aneurysm repair is an alternative technique first introduced in 1991. Endovascular aneurysm repair is technically effective and safe, with lower short-term morbidity and mortality rates than open surgery. Some studies showed that the need for adjunctive vascular procedures to the iliofemoral arteries at the time of endovascular aneurysm repair is significant. These procedures are necessary to either repair damage to the access arteries from the delivery system or provide a conduit for graft delivery in cases where the access arteries are inadequate. Early postoperative vascular complications are due to the technical factors resulting in residual graft limb stenoses. We couldn't find literature reports about thrombolysis in aortic endografts occlusion.
Conclusion: Intra-arterial thrombolysis in aortic endografts occlusion is technically effective and safe; however, more studies must be done.

V14 - 8
DIAGNOSTICS AND TREATMENT OF ABDOMINAL AORTA ANEURISM RUPTURE INTO DUODENUM
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Objective: The most rare complication of abdominal aorta aneurism is the formation of aortointestinal anastomosis. In foreign literature, less than 200 cases are described. Mostly, anastomosis is formed with duodenum, due to intimate abutment of horizontal and ascending duodenum walls to front wall of aneurism.
Methods: –
Results: From1989 to 2005, we examined only 3 patients with abdominal aorta aneurism rupture into duodenum, that is 0.5% of the total number of patients with abdominal aorta aneurism rupture admitted to our hospital. The only intravitally diagnosed aorto-duodenal anastomosis in a

patient of 45-years-old was successfully operated. Patient, of 45-years-old, was admitted in September 2005. The patient was admitted to the department of surgical reanimation. The condition of the patient was bad. Complaints of abdominal pain ache, frank wasting, vomiting with blood, melanorrhagia. Patient was already ill for 2 days, when the described signs appeared. Patient was conscious, showed some inhibition. Skin integument was pale, warm. Breathing was self-maintained, with the rate of 24 min. Pulse was 110 bpm, blood pressure 90/60 mmHg. Abdomen was strained to the touch, painful in all parts, peristalsis was not listened; in epigastrium, a pulsating rounded growth of up to 7 cm in diameter was detected. Diuresis was saved. During palpation of rectum, blood tracks were detected. Circulation in both lower limbs was compensated, pulse in Scarpa's triangles, more distally was absent. Haemoglobin 64 g/l. By ultrasound investigation, abdominal aortography, computer tomography (with opacification), an infrarenal aneurism of abdominal aorta (6 cm in diameter) was detected, without signs of rupture, with negligible quantity of liquid in abdominal cavity and between loops. By esophagogastroduodenoscopy (EGDS), in stomach and duodenum no signs of gastrointestinal bleeding (GIB) was detected; on back wall of ascending part of duodenum, a longitudinal wall defect of up to 1.5 cm was detected. Matching the clinical presentations, examination data, volume of GIB (estimated at 2l), absence of ulcerous illness in anamnesis, presence of abdominal aorta aneurism, the aneurism rupture into duodenum was suspected in the patient. The patient was immediately operated. During the operation, infrarenal aneurism of abdominal aorta with aorto-duodenal fistula of 1.5 cm in diameter between front right wall of the aneurism and ascending part of duodenum was detected. Taking into account a high risk of infection, resection of abdominal aorta aneurism and prosthesis was not carried out. Aorta was ligated below renal arteries, iliac artery were ligated, bypass subclavian/femoral bifurcational prosthesis was performed. The duodenum defect was stitched by standard method. The patient was discharged operation.
Conclusion: The necessary complex of examinations includes ultrasound investigation, abdominal aortography, computer tomography, EGDS. In case of indeterminate diagnosis, an active surgical tactics should be preferred, which will allow to avoid diagnostic pitfalls.

V14 - 9
PENETRATING INJURY TO THE INNOMINATE ARTERIES
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Objective: Penetrating trauma involving the innominate arteries are uncommon. Few surgeons have experience with this kind of injury. The most common causes of these injuries are penetrating trauma. It is a significant cause of mortality and most of the patients die before reaching the hospital. We report here an unusual case of coexisting proximal innominate artery injury and transection of the innominate vein.
Methods: A 25-year-old male patient admitted to emergency service of our clinic. He had an isolated stab wound of about 3 cm long located on the left side of the manubrium sterni at the level of second intercostal space. The patient had confusion and hypotension upon admission. There was no active bleeding from the wound site. The chest X-ray revealed widened mediastinum with no evidence of haemothorax or pneumothorax. The great vessel injury was suspected and the patient was taken to the operating room and median sternotomy was performed.
Results: Surgical exploration revealed transaction of the innominate vein and injury to the innominate artery. In spite of the presence of the massive hemorrhage, proximal and distal control was achieved by clamping the innominate artery. The bleeding from the innominate vein was also controlled by clamping it on either side. Polytetrafluoroethylene patch plasty was performed for repair of the innominate artery. An 8 mm polytetrafluoroethylene tube graft was inserted to innominate vein. The chest was closed following adequate hemostasis. The patient was hypotensive, hypothermic and acidotic perioperatively. This clinic situation was remained postoperatively and the patient died two hours after the operation.
Conclusion: The management of this patient has not been fully defined because of few surgeons have experience with this kind of injury. Timing of surgical repair is critical for successful outcome. This case demonstrated that the injury to innominate vessels is still life-threatening condition and remains a significant cause of mortality.

V14 - 10
TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) IN THE PREVENTION OF VARICEAL REBLEEDING IN PATIENTS WITH CIRRHOSIS
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Objective: Variceal bleeding is a consequence of portal hypertension, which in turn is the major complication of hepatic cirrhosis. Bleeding from oesophageal and gastric varices is a leading cause of death in cirrhotic patients. Mortality following an episode of variceal haemorrhage without treatment is approximately 50% at three months and 66% at one year. The transjugular intrahepatic portosystemic shunt (TIPS) is a new therapeutic modality for variceal bleeding.
Methods: Thirteen patients with cirrhosis with an episode of variceal haemorrhage demonstrated by upper gastrointestinal endoscopy and with a Pugh score of 8–11 were considered for inclusion in the study. Eight patients have ascites and four of them have ascites refractory to diuretic therapy. All patients underwent endoscopic treatment (band ligation) before TIPS.
Results: TIPS was performed successfully in 11 of 13 patients underwent TIPS. TIPS failure was due to impossible puncture of the portal veine. In this study we compared the 18 months survival and rebleeding rates in cirrhotic patients treated by TIPS. Three patients died in the TIPS group (27.3%). Causes of death is liver failure. One patient underwent orthotopic liver transplantation. Three episodes of variceal bleeding occurred in 3 patients in the TIPS group (27.3%). There was no early rebleeding (within 3 mounth). Rebleeding was controlled in all cases by ballon tamponade and variceal band ligation. Encephalopathy was observed in two patients (18.2%). Ascites uncontrolled in two cases (18.2%) as a result of stent stenosis. The cumulative probability of developing shunt dysfunction was 36.4% (four patient) at 18 months. The late shunt thrombosis (3 mounths after TIPS) was in two patients (18.2%).
Conclusion: The results showed that TIPS creation significantly reduced the risk of recurrent bleeding, with no effect on survival. TIPS is effective treatment for refractory ascites The most important side effect of TIPS creation is encephalopathy. Liver transplantation should be considered for all patients with end-stage chronic liver disease.

V14 - 11
ENDOVASCULAR RADIOFREQUENCY OBLITERATION OF GREAT SAPHENOUS VEIN
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Objective: To present the mid-term results of endovascular radiofrequency obliteration of the great saphenous vein.
Methods: From October 2001 until November 2005, 53 great saphenous veins in 48 patients have been treated with the Closure-VNUS system. All patients were female. Indications for radiofrequency obliteration included great saphenous vein less than 12 mm, straight without severe angulations and without large collaterals or double saphenous. The lesser saphenous vein was never treated. All procedures were performed in day-surgery and the patient was dismissed 3 h after the procedure. Under local anesthesia and duplex-guidance the catheter was advanced at 1 cm of distance from the saphenous-femoral junction. Only the first 10 cm of the vessel were obliterated. In cases with incontinent collaterals, Mller flebectomies were combined to the procedure under local anesthesia. In all patients colour-duplex scanning was performed at the end of the procedure, 8 days after the procedure, 30 days, 6 months and annually thereafter.
Results: In all patients, complete obliteration of the great saphenous was achieved, except one. In this patient the obliteration was incomplete and diagnosed in the 8-days post-procedural duplex scanning. The compliance of the patients was excellent. Post-procedural pain was minimum. Haematomas were resolved in 8–10 days. No patient referred paresthesias after the 30 postprocedural days. The aesthetic result was always excellent. No major complications were observed in a mean follow-up of 26 months (range 1–49 months).
Conclusion: The Closure-VNUS system represents an alternative technique to stripping in selected patients. It is a minimal invasive technique that reduces perioperative haematomas and postoperative pain. The patients are immediately mobilized.

V14 - 12
THORACAL SYMPATHECTOMY IN RAYNAUD SYNDROME
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Objective: Raynoud syndrome is a vasospastic disease which occurs due to spastic attacks of the small size arteries induced by cold and emotional stres. In the present study we evaluated the patients with Raynoud Syndrome who undergone thoracal sympatectomy.
Methods: Twelve patients were included into the study who had been undergone thoracal sympatectoy between January 2000 and April 2004. The operation indications were ischemia, superficial ulceration and pain unresponsive to medical and palliative treatment. The data of the patients were retrospectively collected. Open thoracal sypathectomy was performed to the patients. The transaxillary sympathectomy was the preferred technique in our clinic. The T2-T4 sympathetic ganglions were excised in all of the patients.
Results: Eight patients were female and six patients were male. The mean age of the patients was 35.6±6.1 years (27–46 years). Nine patients had pain, nine had paresthesia, six had ischemia, ten had cyanosis an seven had phalangeal ulcers. Four of the patients had phalanx autoamputation. Seven patients had right and the rest had left thoracal sympathectomy. All of the patients had improvement in their cyanosis and superficial ulcers in the early postoperative period. Seven of the patient had pain relief contrary to the two patients who needed postoperative analgesia. One patient underwent distal phlangeal amputation due to severe ischemia. Two of the patients underwent contralateral thoracal sympathectomy for their contralateral limb symptoms.
Conclusion: Thoracal symppathectomy may be the preferred treatment strategy for the vasospastic syndromes unresponsive to medical treatment. The early postoperative outcomes are worth trying.

V14 - 13
THE ROLE OF SEPS IN THE TREATMENT OF CHRONIC VENOUS INSUFFICIENCY
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Objective: Chronic venous insufficiency (CVI) of lower limbs can be caused by valvular insufficiency, due to congenital or acquired disorders, of superficial, deep and perforator veins. In the advanced stages CVI (C4-C6 of CEAP classification) becomes a considerable social-health problem. CVI occurs in a relatively large proportion of the population and it is associated with significant morbidity, high cost of healthcare, and impairement of quality of life. As Linton suggested since 1938, in the stasis ulcers pathogenesis, an important role is played by the perforator veins insufficiency. The aim of the surgical treatment, by interruption of perforators, is abolishing venous reflux. The conventional surgical approaches, as Linton's or Cockett's techniques require large or multiple incisions on diseaded skin. In order to avoid these problems a minimally endoscopic veins surgery has been applied in the treatment of severe CVI, since 1986 by Bergan.
Methods: We perform subfascial endoscopic perforator veins surgery (SEPS) by means of two devices (Gloviczki's technique): the Space-Maker®, to create a subfascial space in lower limbs, and the Ultracision®, to perform the perforator veins interruption. From April 1999, we treated 126 lower limbs in 122 patients (mean age= 67.2 yy; 46 patients was in C4, 22 in C5 and 55 in C6 of CEAP classification). In 4 cases we didn't use the SpaceMaker and we perform the "single access" technique (Hauer's technique). In one case we converterd SEPS to Linton's procedure. The treatment is done in Day-Surgery even in old patients.
Results: At the follow-up (1–78 months) we report: in C4 patients no progression of lypodermatosclerosis and no appearance of stasis ulcers; in C5 patients no ulcers recurrence. Concerning C6 patients we observed: in 55 pts (83%) a complete and lasting healing of the ulcers, in 7 pts (13%) an improvement of skin lesions, in 1 pt (2%) no changes and in the last one (2%) an ulcer recurrence.
Conclusion: Conventional treatments need a long inhospital stay and disability due to an high rate of complications (up to 17%); moreover they show also an high rate of recurrences (up to 10%), even if they seem to be a low cost procedures. Compared to the conventional treatments SEPS allows to reduce the complications rate and the inhospital stay, and it seems to be a safe and effective procedure with early and lasting healing of ulcers.

V14 - 14
STUDY OF THE COMPLIANCE OF THE ANEURYSM WALL WITH DIFFERENT DIAMETER, IN A IN VIVO MODEL IN THE PIG
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Objective: To examine the relationship between the distensibility of the sac abdominal aortic aneurysm model and the tension o pressure and the possibility of measurement with sensors placed into the sac, and its variation in normal, hyper and hipopressure systemic pressure.
Methods: In an in vivo model, an artificial aneurysm sac was created in the pig with surgical techniques. In the wall of the sac, three sensor are placed in horizontal and vertical planes. Registration of the signals for telemetry are performed in 7 days intervals. Distances in the different fases of the distentibily period are measured. With the values registered, analysis of variance was performed, with significance accepted at $P = 0.5$.
Results: The different values of the distensibity of the sac are registered in relation of the systemic pressure and endotension sac situation.
Conclusion: The method evaluated show the fiability of method.

V14 - 15
CAROTID TO SUBCLAVIAN BYPASS UNDER MODERATE HYPOTERMIA
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Objective: There are different medical and surgical treatment modalities for carotid artery disease. We present the surgical intervention under moderate hypothermic cardiopulmonary bypass (CBP) for the case with total occluded right internal carotid artery, and serious narrowed left common carotid artery.
Methods: The patient (66 years old, male) had cerebral stroke (february 2005), diabetes mellitus (since 1994), myocardial infarction (1997), coronary artery bypass grafting (1997), smoking one box of cigarette per day till 30 years. There was atherosclerotic plaque on both bilateral carotid arteries those were shown with carotid arterial doppler ultrasonography. Right internal carotid artery was totally occluded, left internal carotid artery had plaque that made 25% stenosis, so we decided to have carotid and coroner angiography. Carotid angiography showed totally occluded right internal carotid artery and serious left common carotid artery stenosis on proximal segment and poststenotic dilatation. Afterwards we had digital substraction angiography in order to see the distal vascular bed better. Digital substraction angiography showed totally occluded right internal carotid artery, orificial localized hour glass type serious stenosis and poststenotic dilatation of left common carotid artery.
Results: The case was externated on postoperative fifth day without any complication.
Conclusion: Different surgical therapies can be applied for carotid artery surgery. It might be recommended patients with bilateral narrowed carotid artery can be operated safely under moderate hypothermic CPB.

V14 - 16
CASE REPORT: AN ALTERNATIVE MATERIAL IN TREATMENT OF THE VASCULAR ACCESS GRAFT INFECTION
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Objective: Infection is one of significant problems in patients with arteriovenous (AV) grafts for hemodialysis access. Occurrence the infection of AV grafts demands the graft replacement with autologous tissue access. In absence of suitable autologous material, we use, at our University Hospital, allogenous human saphenous vein (HASV), as good alternative material for vascular reconstruction surgery.
Methods: We present three cases of infection of the vascular access grafts (PTFE). All patients had diagnosed the graft infection, based on local and systemic clinical signs, the laboratory analyses and the Doppler-sonography findings. All patients had surgical and antibacterial treatment due to the infected PTFE graft. During the operation the infected PTFE graft was removed and new vascular access with HASV was implanted. In two cases

was performed one stage operation and in one case was performed two-stage operation (in the first stage was removed the infected graft and in the second stage the new AV was reconstructed using the HASV). At our University Hospital the human saphenous vein allografts are stored in the saline solution containing heparin and antibiotics at 4 ºC for up to 30 days.
Results: In first case the vascular access with HASV was patent 15 months. One week after the kidney transplantation, the vascular access was occluded. Second patient is still on hemodialysis and the vascular access is patent up to now. In follow-up evaluation CT-angio showed patent AV access with the atherosclerotic plaques in the wall. Third patient died 10 months after the implantation of the HASV due the pulmocardial insufficiency. The HASV vascular access was patent and used routinely up to the death. We would like to emphasize the fact that there was no infection in the HASV vascular access grafts.
Conclusion: We consider that the human saphenous vein allograft is good alternative material to use in treatment of the graft infection of vascular access in absence of suitable autologous tissue material.

V14 - 17
DUPLEX U/S IS THE DIAGNOSTIC MODALITY OF CHOICE IN PROBLEMATIC ARTERIO-VENOUS FISTULAE (AVF)
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Objective: To demonstrate that Duplex U/S is the investigation of choice in problematic AVF.
Methods: In the last five years, over 550 Arterio-Venous Fistula (AVF) Duplex scans were performed at our Vascular U/S service. All scans were viewed and reported by the author. Over 90% of these AVF were native. Fistulas were categorised as "Problematic Fistula" (two thirds), where a functional fistula had developed a clinical problem, or "Failure To Develop" (one third), where an as yet unused fistula was not maturing satisfactorily. Correlation of Duplex findings and subsequent fistulography at the time of therapeutic endoluminal intervention was made in over 50% of fistula U/S scans performed.
Results: Stenosis at some point in the fistula was the commonest problem detected and the large majority of these stenoses were treated by endoluminal techniques. The stenosis was in the inflow artery in 10%, anastomotic 12%, distal fistula vein in 30%, mid fistula vein 30%, proximal fistula vein 10%, central vein 5%. Diagnostic problems are presented by the fistula anastomosis, where gray scale and colour imaging are more appropriate than velocities, and by proximal venous stenoses at or proximal to the CV/SCV junction.
Conclusion: U/S proves to be an accurate modality in diagnosing AVF problems and in planning corrective intervention. A good understanding of fistula anatomy and hemodynamics is needed to perform effective AV fistula U/S scanning.

V14 - 18
BENEFITS OF EARLY SURGICAL REVISION IN FAILING ARTERIOVENOUS FISTULAS AND EARLY USAGE OF THE REVISED FISTULAS
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Objective: Arteriovenous fistulas (AVF) are the most commonly used vascular access for the haemodialysis patients. If the fistula fails because of a thrombosis or stenosis the common policy to follow is to create a new AVF from the proximal part of the limb or from the other limb.
Methods: Between November 2001 and November 2004, 680 fistulas have been created to 604 patients by the same cardiovascular surgeon. In this period early surgical revision procedures were performed to 112 patients (61 men, mean age 41±13). The elbow fistulas that were created 3 months ago; in which there is no chronic fibrotic or thrombotic changes in the venous system of the forarm were considered to be suitable for early revision.
Results: In thrombosis cases ; thrombosis time changes from 6 h to 8 days. The fistulas that have been revised were successfully used within 1 or 7 days. Seventy-five revised fistulas (67%) were used in the next dialysis session without the requirement of temporary catheters. Embolectomy was performed to two patients who developed early thrombosis. Late thrombosis developed in seven patients. The other revised fistulas were all functional.
Conclusion: If an arteriovenous fistula becomes nonfunctional, early surgical revision decreases the need of temporary catheters and decreases the need to create new fistulas and provides early usage and constancy of the fistula.

V14 - 19
PRIMARY AND SECONDARY HAEMODIALYSIS VASCULAR ACCESS HAVE SIMILAR OUTCOME
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Objective: Secondary arteriovenous fistulae (AVFs) are subsequent AVFs in patients whose primary procedure has failed. This study aims to find a difference in the patency rates of primary and secondary AVFs and factors explaining the difference.
Methods: 379 native AVFs were created in the four years from January 2000 and December 2003. Of these, 97 were secondary procedures. We extracted patient data from our departmental electronic database and supplemented this with information from patient notes. Information gathered included data on demography, procedure and outcome in the form of the failure rates of primary and secondary AVFs.
Results: Of 240 primary procedures, 33 (14%) failed prior to discharge and 56 (23%) failed to develop. The overall primary patency rate for AVFs is 63%. Of 97 secondary AVFs performed, 11 (11.3%) failed prior to discharge and 24 (24.7%) failed to develop, giving a secondary patency rate at 3 months of 63.9%. Only 19% of Brachial AVFs experienced primary failure as compared to 42% of radiocephalic AVFs. However, as secondary AVFs, both radiocephalic and brachial AVFs had the same failure rate (34%). Data were non-normal and subjected to nonparametric statistical tests (Mann-Whitney *U* test) and no significant difference was found between primary and secondary outcome.
Conclusion: Short term success rates of primary and secondary surgical arteriovenous fistulae are similar.

V14 - 20
THE SYSTEMIC INFLAMMATORY RESPONSE SYNDROME AND ABDOMINAL AORTIC ANEURYSM OPEN AND ENDOVASCULAR REPAIR IN HIGH-RISK PATIENTS
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Objective: Systemic inflammatory response syndrome (SIRS) has been observed after both abdominal aortic aneurysm resection, and endovascular repair using stent grafts. It seems that careful analysis of SIRS criteria might improve the prognosis of postoperative course as well as treatment results. SIRS occurrence after surgery might indicate major surgical trauma, and its negative effect on the organism. The purpose of the present study was to assess the incidence of SIRS depending on the method of AAA repair, i.e., endovascular or resective.
Methods: High surgical risk patients with infrarenal AAA were included, who met the following criteria: maximum aneurysm diameter: men >5 cm, women >4.5 cm, and symptomatic OR rapidly expanding aneurysm. The investigations were carried out among patients who had received endovascular treatment (Group A) or classic surgical resection (Group B). SIRS criteria were analysed in both groups.
Results: On postoperative day 0, systemic inflammatory response syndrome (SIRS) was diagnosed in 4 (8%) of Group A, and 31 (60.8%) Group B patients; the respective values on postoperative day 2, were 3 patients (6%) in Group A, and 29 (60.4%) in Group B. Thus, the difference in SIRS occurrence was statistically significant on postoperative day 0 ($P<0.05$), and persisted on days 1 and 2. The frequency with which SIRS developed in the early postoperative period corresponded to complications and mortality rates.
Conclusion: Understanding SIRS might contribute to better results of AAA repair, and more comprehensive prognosis. Persistance as well as higher number of SIRS symptoms worsens prognosis. Additionally, our results seem to confirm diminished frequency of SIRS occurrence after endovascular repair, and suggest that stent-grafting is a more safe procedure with a lower risk of perioperative complications.

V14 - 21
PERIPHERAL ATHEROSCLEROSIS IN PATIENTS YOUNGER THEN 55 YEARS
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Objective: Atherosclerosis is the most common cause of lower-limb ischemia in young adults. Premature atherosclerosis is characterized by rapid progressive, and an aggressive course producing early disability or death. The cause and incidence of this form atherosclerosis is not precisely known. The aim of our work is to determine the rate of early atherosclerosis and role of homocysteine, inflammation, androgen hormones and insulin as risk factor for accelerated atherosclerosis in young adults.
Methods: We have identified 2152 patients with peripheral atherosclerosis of low-extremities (all men) for 8-years period. They were analyzed according to age, risk factors (smoking, hypertension and diabetes mellitus) and presence of concomitant diseases. We analyzed two groups of different age patients to identify risk factors of atherosclerosis development. The first group comprised 30 young patients (less than 55 years). The concentration of plasma total homocysteine, testosterone, C-reactive protein and insulin were measured while subjects were fasting. A second group of 20 patients over 60 years of age, with the same disease distribution as the younger patients served as a control group.
Results: This study included a group of 387 patients (less than 55 years), corresponding to about 18% of total number of patients. The higher rate of the younger patients were smokers (96% vs. 79%). majority of older patients had hypertension. There was not a significant difference in incidence of diabetes between groups. The C-reactive protein concentrations were higher in young patients than in control group: 6.7+1.3 mg/l (range 0.6–9.8 mg/l) vs. 3.1+0.15 mg/l (range, 0.4–5.3 mg/l). The levels of homocysteine were 12.07+2.1 and 18.1+3.4 nmol/l in younger and older patients, respectively. We have not found the statistically significant differences in testosterone and insulin concentration between two groups.
Conclusion: our findings strongly suggest the significant role of inflammation and smoking in pathogenesis of peripheral atherosclerosis disease in younger patients.

V14 - 22
DIAGNOSIS AND TREATMENT OF CAROTID BODY PARAGANGLIOMA
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Objective: The carotid body paraganglioma is a relatively rare neoplasm of obccure origin. These are usually benign and commonly present as asymptomatic cervical mass. The resection of carotid body tumors show difficulties due to their localization at cranial nerves and arteriae.
Methods: Records of 6 patients (All of these cases female) with carotid body tumors treated between 1985 and 2005, treated at our center were retrospectively reviewed. Data on classification, clinical presentation and surgical treatment were extracted from the case records.
Results: Between 1985 and 2005, carotid body paraganglioma were diagnosed in 5 patients. All of these cases female and the average age of the patients 51.2 years (range 38–62 years). All of the cases presented as a large asymptomatic non-tender neck mass. As per Shamblin classification three of tumors were type 2 and three were types 3. In three cases subadventitial tumor excision was performed. The carotid artery was repaired with polyt etrafluoroethylene(PTFE) graft in Shamblin type 3 three cases. There was no operative mortality After a mean follow-up 36.4 months (range 1 months to 108 months), there were no signs of tumor recurrence and neurologic deficits in any of the cases.
Conclusion: Surgical excision is the treatment of choice for the carotid body paragangliomas. For the tumors that are in intimate contact with carotid arteries, the treatment by vascular surgeon. The advances in vascular surgery techniques have reduced the risk of perioperative complications such as carotid injury, stroke and death; but the risk at cranial nerve complication still remains.

V14 - 23
SURGICAL DECISION FOUND FOR THE TREATMENT OF THE GRAFT INFECTION OF THE DESCENDING THORACIC AORTA, DEVELOPPED AS A RESULT OF THE LATE ESOPHAGEAL FISTULA
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Objective: Despite the fact that the graft infection of the descending thoracic aorta is quite uncommon, nearly always it leads to a lethal outcome, especially if the infection is connected with the formation of the esophageal fistula. The aim of the report is to analyse the successful case of surgical treatment of the posttraumatic rupture of the thoracic aorta, complicated by esophageal fistula, mediastinitis and empyema.
Methods: (Clinical data): A 41-year-old man experienced the blunt trauma of the chest with the formation of the pseudoaneurism of the thoracic aorta. Because of the concealed clinical course, the operation was done only in 12 days after the trauma. On the temporary bypass of the ascending and media thoracic aorta there was made the prosthesis of the descending aorta and an immense haemotoma mediastinum was liquidated. In a month after the operation the fistula was diagnosed, mediastinitis, empyema and, consequently, the aorta graft infection were detected. Secondary surgical operation included: extraanatomic subclivian-iliac bypass on the right side, “switching off” the intrathoracic eosophagus, gastrostomy and esophagostomy. The infected graft was removed and the thoracic aorta was ligated. Just after the operation the right ankle index was 0.6, and the left – 0.45. The systolic tension in the right brachicum was 50 mm of mercury less, that in the left. The stomach-derived esophagoplasty was performed and the “switched-off” intrathoracic oesophagus was removed in 7 month after the trauma.
Results: The patient gained 20 kilograms during the first year after the operation. In two years all laboratory parameters are in normal ranges, there is no loss in function in the organs that are supplying by the bypass. The ankle index comprises 0.9 (on the left) and 0.8 (on the left).
Conclusion: 1. One of the fatal complications after thoracic aorta grafting is graft infection due to the late esophageal fistula. 2. Extraanatomic subclivian-iliac bypassing and “switching off” the esophagus with the subsequent esophagoplasty in the long term provides a life-saving opportunity for a patient.

V14 - 24
VASCULAR COMPLICATIONS RELATED TO LUMBAR DISC SURGERY
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Objective: Vascular complications related to lumbar disc operations are rare but extremely fatal condions. The authors analyzed data retrospectively obtained in 6 patients with vascular complications that occurred during lumbar disc operations performed between 2001 and 2005.
Methods: One patients underwent an L5-S1 procedure and the remaining underwent L4-5 surgery. In six patients with complications occurring early in the postopertive period. Dacron graft was placed in four with arterial injuries and saphenous vein graft in one. In two cases of arterial injury and four of venous injury, the lesion was repaired using the primer suture technique.
Results: The most commonly affected vessels were left common iliac arteries (80%) and left common iliac vein (40%). In six early cases, shock or preshock due to hemorrhage developed durindg the early phase. There was no mortality. During a mean follow-up period of 3.2 years, none of the patients suffered any prroblems related to vascular injury.
Conclusion: Despite its low incidance, iatrogenic vascular injury related to lumbar disc surgery is a possible complications. During limbar disc operations early diagnosis of vascular injuries and urgent transperioneal surgery can save patients’ lives.

V14 - 25
ROLE OF MULTIDETECTOR CT ANGIOGRAPHY IN EVALUATION OF INDICATIONS FOR RECONSTRUCTIVE OPERATIONS ON BRACHIOCEPHAL ARTERIES
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Objective: To evaluate efficiency of MDCT-angiography in the diagnosis of carotid stenosis.
Methods: MDCTA of brachiocephal and brain arteries was performed to 271 patient. 286 invetigations were made. Siemens Somatom Sensation CT was used. 100-120 ml of Visipaque-320 were injected with injection speed 3.5 ml/sec. Scan delay was determined by Bolus Tracking. Scan time was 30– 35 seconds. Aortal arch, extra- and intra cranial parts of carotid arteries, circle

of Willis and injures of brain parenchyma were investigated. Next investigation were made: MDCTA, carotid angiography, MR-angiography and MRI of brain. All patients underwent US examination. One hundred and forty two reconstructive operations were made: 89 of them were classic carotid endarterectomy (CAE), 21 eversion CAEs, 12 corrections of kinking, 12 carotid stentings, 3 carotid-subclavian anastomosings, 5 prosthesings of aortal arch and brachiocephal arteries.
Results: By the protocols of operationsthe accuracy of MDCTA evaluation of carotid stenosis is 97.2%, sensivity is 94.7%, specifity is 98.3%. MDCTA and US examination found out atherosclerotic stenosis in 223 patients, kinking in 95 (35%), in 22 (8%) of them atherosclerosis was not found, in 11 patients (4%) abnormal brachiocephal arteries were found, 1 without aterosclerosis, Takayasu arteriitis found in 5 (2%) patients, fibromuscular dysplasia in 2 (1%) patients, other patology in 25 (9%) patients, abnormal circle of Willis in 46 (17%) patients. There was no complications of 286 procedures of MDCTA.
Conclusion: MDCTA is minimal invasive procedure. It can find out stenosis of carotid arteries, intramural changes, structure of the plaque, variations of circle of Willis, brain injures and pathology of near-lying organs. Using hemodynamic characteristics of US the invasive angiography may be declined in determining of indications for CAE in the majority of cases.

V14 - 26

THORACOSCOPIC SYMPATHECTOMY IN PERIPHERAL VASCULAR DESORDERS OF UPPER LIMBS IN LONG TERM FOLLOW-UP

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Objective: Thoracic sympathectomy is a reference treatment of peripheral arterial vasoconstrictor, inflammatory and atherosclerotic disorders of upper extremities. The aim of the study is the comparison of short and long-term effectiveness of thoracoscopic sympathectomy in patients with different different types of peripheral vascular desorders.
Methods: From 1995 to the end of 2004-332 thoracoscopic sympathectomies were performed (in 120 patients unilateral and in 106 – bilateral). According to the indications five groups of patients were selected: Raynaud disease (MR), hyperhydrosis (HH) of upper extremities, atherosclerotic ischemia (AO), Ischemia related to the Buerger's disease (TAO) or ischemia related with thoracic outlet syndrome (TOS). Early and long term complications were compared. Long-term results were evaluated by the postal questionnaire.
Results: Majority of patients were female (76.81%). Hyperhydrosis and Raynaud disease were the most common indications for the operation (37.65% and 49.1% respectively). Other indications were rare: Atherosclerosis obliterans (6.63%), Thrombangitis obliterans (4.22%), thoracic outlet syndrome (2.41%). Mean hospital stay was 5.48 days (±4.44); mean duration of the procedure was 55.78 min. (±21.82), mean postoperative hospital stay was 2.8 days (±1.85). The hospital stay (overall and pos-op.) in Buerger's disease and atherosclerosis was significantly longer ($P<0.01$) No perioperative death occurred. Conversion to the open thoracotomy was performed in 4 cases (1.2%). The following complications were diagnosed: pneumothorax in 4.82% cases, Horner's syndrome -0.9%, bleeding - 0.6%. The best immediate perioperative effect was found in hyperhydrosis and Raynaud disease (100 and 98.77% of satisfactory results respectively). Satisfactory perioperative effect was less significant in other groups: Buerger's disease –78.57%, atherosclerotic ischemia –77.27%, thoracic outlet syndrome –75%. Late result obtained from the postal questionnaire in ischemic group were even worse (thoracic outlet syndrome –60.0%, atherosclerotic ischemia –53.3%, Buerger's disease –42.86%), comparing to hyperhydrosis and Raynaud disease groups where the efficacy of the procedure was continuously good (93.7 and 69.00, respectively) ($P<0.01$).
Conclusion: Thoracoscopic sympathectomy is safe and effective therapeutic method in hyperhydrosis and Raynaud disease. The late results in ischemic changes are not so spectacular, but immediate effect of sympathectomy allows i.e. healing of existing ulcerative changes.

V14 - 27

SURGERY FOR VASCULAR TUMOR INVASION: TEN YEARS EXPERIENCE

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Objective: With the improvement in postopertive mortality and morbidity in patients with malignency indication for resection of selected tumors with invasion vascular structures have steadily widened. The aim oh this report is to examine our periopertive morbidty and mortality of tumor excision requiring a major vascular resection and reconstruction.
Methods: From January 1995 through November 2005 36 patients were operated at our instution. There were 22 male and 14 female patients. Mean age was 47.7±15.7 years (range, 18 to 68).
Results: Six patients (16.7%) had aortic resection and graft reconstruction, and 8 of them (22.2%) had inferior vena cava resection and reconstruction. Iliac or femoral artery and/or vein resection with reconstruction were perfomed in 14 patients (38.8%), subclavian artery and/or vein intervention was performed for 3 patients (8.3%), and carotid artery intervention was performed for 5 patients (13.9%). There was no opertive mortality. There was two early morbidity related to bleeding. There was no limb or other organ ischemia.
Conclusion: Despite the success of vascular reconstruction, many surgeons still consider tumor invasion of vascular structures a relative contraindications tumor resection. We are in the opinion that concominant vascular surgical interventions can be safely performed with acceptable results in patients with vascular tumor invasion.

V14 - 28

DEEP HYPOTHERMIA WITH TEMPORAL EXTRACORPOREAL CIRCULATION ARREST IN SURGICAL TREATMENT OF NEOPLASTIC KIDNEY TUMORS WITH TUMOR MASSES PENETRATING INTO THE INFERIOR VENA CAVA IN A HEART DIRECTION

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Objective: Renal neoplastic tumors with tumor masses penetrating into the inferior vena cava in a heart direction, presents a difficult surgical challenge and require cooperation of open-heart surgeons and urologists. The aim of this topic is to present the experience from the one center on surgical treatment of those patients.
Methods: Between 2000 and 2005 thirteen patients, age 22 to 76 (average 58), were operated because of the renal tumors with tumor masses penetrating into the inferior vena cava in a heart direction. The operations were made by the cardiac surgeons and urologists, using an extracorporeal circulation with temporal extracorporeal circulation arrest in a deep hypothermia. After nephrectomy the patient was cooled, the extracorporeal circulation was stopped, the tumor masses were removed simultaneously from interior vena cava and opened right atrium.
Results: Tumors masses were successfully removed in all operated patients. All operations were made in the deep hypothermia and extracorporeal circulation. The circulation arrest time lasted about 29 min. Two patients died in the perioperative period because of acute and massive pulmonary embolism. 11 patients were discharged from the hospital in a good general condition.
Conclusion: The presenting technique of treatment patients with neoplastic tumor masses penetrating into the inferior vena cava in a heart direction gives the possibility of evacuation the total neoplastic masses. High risk of the massive embolism with neoplastic masses seems to be the major complication. Evacuation of whole neoplasm masses and "extremely gently" operational technique, are the most important things.

V14 - 29

A NOVEL APPROACH FOR TREATMENT OF FEMORAL ARTERIOVENOUS FISTULA: ENDOVASCULAR STENT GRAFTING

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Objective: Percutaneous management of AVF's or pseudoaneurysms is becoming more popular today being minimally invasive and enabling interventionists to discharge the patient on the next day of the operation.
Methods: A 21-year-old male patient with the complaints of right lower limb pain, edema and evidence of superficial veins for one month applied to our institution. He had a history of penetrating type of injury to the middle one thirds of the thigh. The diameter of the lesioned limb was greater than the contralateral site. Inspection revealed a skar of the penetrating injury. Thrill and continuous type of murmur was noticed on physical examination. Peripheral arteriography revealed a femoral arteriovenous fistula between the superficial femoral artery and the vein.

Results: Endovascular stent was placed to the femoral artery to the level of arteriovenous fistula by mean of percutaneous intervention. The flow through the fistula was seen to disappear just after implantation of the stent. Physical examination after the intervention revealed that the thrill and the murmur disappeared. The patient was heparinized and oral antiaggreagation was done after the procedure. The patient was discharged on the second day of the intervention without any complication.
Conclusion: The endovascular stent grafting seems to be a good alternative for treatment of the arteriovenous fistulas occurring after penetrating injuries in selected patients.

POSTERS

P - 1

LARGE LEFT ATRIAL MYXOMA WITH SEVERE MITRAL VALVE REGURGITATION

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Objective: Most myxomas arise from the left side of atrial septum. In some of these cases the standard left atriotomy does not allow safe tumor resection and easy access to the mitral valve. We report three patients with huge left atrial myxomas associated to severe mitral regurgitation, who underwent an inverted T-shaped biatrial incision for tumor excision and mitral repair.
Methods: A 37-year-old woman was admitted for treatment of a huge left atrial mass attached with a broad pedicle to the atrial septum. The tumor filled most of the left ventricular cavity and a mild mitral valve regurgitation was associated. A 62 years old woman was admitted for resection of a large left atrial myxoma arising from the interatrial septum very close to the posteromedial mitral commissure. The mass appeared to prolapse into the left ventricle during diastole and apparently trivial mitral regurgitation was present. A 54 years old woman was admitted for surgical treatment of left atrial myxoma. The posterior mitral leaflet was held down by this huge tumor even if only mild mitral regurgitation was documented.
Results: The patients were treated with an inverted T-shaped biatrial approach. We observed the origin of the tumors by the left side and we excised the neoformations en-bloc including a wide margin of tissue (5 mm) around their base. In all cases only after tumor resection we observed severe mitral valve regurgitation. Two patients underwent a mitral valve anuloplasty by Carpentier Physioring while in the other one we performed a paracommissural edge to edge suture technique. Atrial septal defects were closed using a glutaraldehyde treated autologous pericardium patch. Then the free edge of the left atriotomy was sewn to the patch corresponding with the interatrial groove. The right atriotomy was closed with running sutures at the beating heart. The postoperative course was uneventful for everyone.
Conclusion: The left atrial access alone does not allow complete heart inspection and requires significant tumor manipulation in the case of huge myxoma. When a large tumoral mass grows from the atrial septum into the left ventricle may compromise mitral valve competence even if it may not be obvious preoperatively. Consequently, mitral regurgitation becomes evident after tumor resection. Large left atrial myxoma are effectively approached by the T-shaped inverted bi-atrial incision which allows controlled tumor removal, excellent mitral valve exposure, four chamber inspection and reduces risk of sinus node damage by vertical right atrial incision.

P - 2

INFLUENSE OF RECOMBINANT ACTIVATED FACTOR VIIA ON DECREASING BLOOD PRODUCTS USE IN PATIENTS WITH INTRACTABLE BLEEDING ASSOCIATED WITH CARDIAC SURGERY

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Objective: The aim was to determine the influense of recombinant activated facotr VIIa (rFVIIa) on decreasing blood products use in patients with intractable bleeding associated with cardiac surgery.
Methods: Sixthy patients under cardiopulmonary bypass (male - 35, female - 25, age - 51.8±4.5) and intracatable bleeding 9,0±3.3 ml/min (3,0-20.0 ml/min) were randomized in two groups: group 1 - 34 patients, who was given rFVIIa 75.3±10.1 microg/kg, group 2 - 26 patients, who was compoused control group. Was estimated volumes of autoblood (ml), washed erythrocytes (ml), fresh-frozen plasma (ml) before and after administration of rFVIIa.
Results: In group 1 before administration of rFVIIa autoblood was tranfusion in 11% of pts., after - 0%, red blood cells tranfusion - on 67 and 39%, washed erythrocytes - on 33 and 0%, fresh-frozen plasma - 78 and 50% respectively.
Conclusion: Use of recombinant activated factor VIIa in patients with intractable bleeding associated with cardiac surgery resulted in a statistically significant reduction the number and volumes of blood and its products transfusions.

P - 3

PREOPERATIVE SERUM LEVELS OF C-REACTIVE PROTEIN AND POSTOPERATIVE ATRIAL FIBRILLATION IN ELECTIVE CORONARY ARTERY SURGERY: WHAT DO WE REALLY KNOW?

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Objective: Despite the use of prophylactic antiarrhytmic medication, atrial fibrillation (AF) still occurs in 20% to 40% of patients undergoing coronary artery bypass grafting (CABG). Multiple studies have now focused the attention on preoperative serum levels of C-reactive protein (CRP). Elevated baseline CRP might represent a subclinical preoperative inflammatory state that, when altered by the surgical procedure, may trigger the arrhythmia.
Methods: Blood samples for determination of CRP were collected at admission from the last 218 consecutive patients underwent elective on-pump CABG at our institution. Baseline CRP was then dichotomized into a low and a high baseline group, using a cutoff value of 3.0 mg/l, according to the American Heart Association scientific statement, suggesting that levels greater than 3 mg/l should be considered high.
Results: Baseline CRP was 1.2±0.6 in Group I (CRP < 3.0 mg/l) and 11.0±9.2 in Group II (CRP = 3.0 mg/l). After CABG 26 out of 153 patients with low preoperative CRP levels had AF vs. 7 out of 65 patients with high baseline levels (P = 0.24). To estimate the risk of developing AF in both groups we used odds ratios and 95% confidence intervals: the relative risk of developing AF was 0.871 (0.712-1.066) in Group I and 1.478 (0.740-2.950) in Group II. We quantified the association between postoperative AF and any possible known predictor by univariate analysis (age, sex, diabetes, hypertension, hypercholesterolemia, peripheral vascular disease, preoperative creatinine, ejection fraction, preoperative use of beta-blockers, intraoperative use of blood products, preoperative CRP levels and perfusion time). Because the distribution of CRP was highly skewed, logarithmic transformation of CRP was used for the logistic regression. None of this factor was associated to increased risk of developing AF after surgery. Patients with AF were cardioverted to sinus rhythm using amiodarone ev.
Conclusion: In the present study, patients with high preoperative CRP levels did not have a significative increased risk of having AF after surgery. Moreover, in our study high CRP levels were not associated with prolonged length of stay.

P - 4

INFLUENCE AMINOCAPRONIC ACID AND LOW DOZES OF APROTININ ON BLOOD LOSS AFTER CARDIOPULMONARY BYPASS

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Objective: Results of retrospective research of influence of 2 million KIE of aprotinin (group 1) and aminocapronic acid (group 2) on size postoperative blood loss at patients after cardiopulmonary bypass (CPB) are submitted.
Methods: Results of retrospective research of influence of 2 million KIE of aprotinin (group 1) and aminocapronic acid (group 2) on size postoperative blood loss at patients after cardiopulmonary bypass (CPB) are submitted.
Results: Average postoperative blood loss has made 4.7±0.2 ml /kg/24 of hour in group 1 and 4.8±0.4 ml/kg/24 of hour in group 2 (P>0.05). Lower is marked authentically blood loss at use aprotinin at patients with normothermic long CPB in comparison with hypothermic long CPB (?<0.05), that can be connected not only to a temperature mode, but also with authentically smaller average duration normothermic CPB (113.1±3.4 and 136.9±6,0 mines, respectively; ? < 0.05). Postoperative blood loss at patients after hypothermic long CPB in group 1 and 2 authentically did not differ, thus duration CPB at ill groups 1 was authentically above (P<0.02), than at ill groups 2. It testifies to advantage of use aprotininl in case of long hypothermic CPB.
Conclusion: Use of aprotinin is preferable at patients with the big volume of operative intervention in conditions long hypothermic perfusion.

P - 5

STERNAL WOUND INFECTIONS AFTER CORONARY ARTERY BYPASS SURGERY IN DIABETICS PATIENTS: DOES THE USE OF TWO PEDICLED INTERNAL THORACIC ARTERIES MATTER?

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Objective: Major studies have identified the use of bilateral internal thoracic arteries (ITAs) as a significant risk factors for sternal dehiscence and mediastinal wound infection in diabetics. We present our findings in 80 consecutive diabetic patients referred at our institution for myocardial revascularization.
Methods: We retrospectively evaluated the incidence of infections in 80 patients underwent elective on-pump coronary artery bypass graft surgery, using left (Group I, n = 41) or both (Group II, n = 39) pedicled ITAs, according to surgeon's choice. In patients who received two ITAs we used two adjunctive drainages, removed on 5th postoperative day, to keep dry the sternal wound. A Jackson-Pratt drainage (15 Fr) was placed in the anterior mediastinum, and a Redon drainage (15 Fr) was placed between the sternum and the pectoralis fascia.
Results: The two groups were homogeneous for, sex, associated diseases and total number of grafts received. Admission blood fasting glucose was 155±53 mg/100 ml in Group I and 149±42 mg/100 ml in Group II, $P = 0.600$. Patients in Group I were more likely to have previous myocardial infarction ($P = 0.037$), to be older ($P = 0.01$) and to have a slightly worse ejection fraction ($P = 0.045$). Skin-toskin time (274±43 vs. 245±40 min, $P = 0.003$) and cardiopulmonary bypass time (111±21 vs. 97±21 min, $P = 0.004$) were increased in Group II. In both groups there were no operative deaths and all patients were discharged after a medium length of stay of 8±2 days in Group I and 9±4 days in Group II, $P = 0.220$. Superficial sternal wound infections developed in 3 patients (2 in Group I and 1 in Group II), were all sustained by S. aureus and complete recovery was obtained before discharge. No sternal dehiscence occurred in the two groups.
Conclusion: The use of both ITAs and the loss of sternal blood supply aren't the major contributors to infections development in diabetics. Strict blood-glucose monitoring and the use of adjunctive drainages provide satisfactory results in bilateral ITA group.

P - 6

WHOLE BODY PERFUSION UNDER MODERATE DEGREE HYPOTHERMIA DURING AORTIC ARCH REPAIR

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Objective: There have been stil some controversies in aortic arch reconstruction especially the cerebral protection methods. We in the present study report the operative and postoperative outcomes of the cases of aortic arch replacement using whole body perfusion during the aortic reconstruction under 28 ºC moderate hypothermia.
Methods: A total of 11 patients were operated between March 2003 and through September 2005. Two of the patients were female. The mean age of the patients was 53.2±7.6 years (range; 42-65 years). We cannulated the right axillary artery for cerebral perfusion and the right femoral artery for body perfusion. Arch replacement was done under continuous antegrade cerebral perfusion through right axillary artery and continuous body perfusion through right femoral artery via intraaortic occlusion of proximal descending aorta with an intraaortic occlusion catheter. Perioperative data and postoperative outcomes, blood urea nitrogen, serum creatinine and alanin amino tranferase values were evaluated retrospectively in the patients.
Results: There was only one hospital mortality. No neurologic complication was met. Postoperative levels of BUN, creatinin did not show significant difference but the ALT levels were significantly higher in the postoperative period which infact was within the normal ranges of cardiopulmonary bypass effect.
Conclusion: Whole body perfusion through axillary and femoral artery may provide more time for the surgeon and good cerebral and visceral protection which are especially important for the surgical teams in the learning curve.

P - 7

ANTEGRADE SELECTIVE CEREBRAL PERFUSION: DOES PRESSURE CONTROLLED PERFUSION AFFECT NEUROLOGIC OUTCOME IN SIDE GRAFT CANNULATION IN TYPE A AORTIC DISSECTION?

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Objective: Antegrade selective cerebral perfusion through right axillary is a safe and effective method for cerebral protection in aortic surgery. In the present study, we evaluated whether pressure control in antegrade selective cerebral perfusion affected the neurologic outcome or not.
Methods: 56 patients (16 female, 40 male) with a mean age of 53.7±10.0 years (range, 23-74 years) were operated with the diagnosis of Type A aortic dissection by using the right axillary artery side graft cannulation technique. Antegrade selective cerebral perfusion with pressure control was used in the first 37 (66.1%) patients (Group 1) whereas antegrade selective cerebral perfusion with flow control was used in the consecutive 19 patients (33.9%) (Group 2). The groups were compared according to postoperative neurologic outcomes.
Results: The hospital mortality was 8.9% with 5 patients. The mean ASCP flows of the Groups 1 was 663±76 ml/min. It was 692±56 ml/min in Group 2. This difference was not statistically significant ($P>0.05$). The neurological dysfunction rates were 2.7% in Group 1 with 1 patient and 5.3% in Group 2 with 1 patient. The neurologic event was more in Group 2 although the difference was not significant.
Conclusion: Antegrade selective cerebral perfusion through side graft cannulation technique may serve better cerebral protection because it avoids pressure oscillations during cerebral perfusion.

P - 8

IS DOWN SYNDROME A RISK FACTOR IN SURGICAL TREATMENT OF CONGENITAL CARDIAC MALFORMATIONS?

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Objective: We aimed to determine the impact of Down's syndrome on surgical outcomes in children with cardiac malformations
Methods: The surgical results of 79 patients with Down syndrome were compared with 59 patients having normal karyotype. The mean age was 27.3±4.2 months. Preoperative, intraoperative, postoperative parameters and midterm follow-up results were recorded and compared.
Results: Preoperatively; heart failure symptoms were more common in group B, pulmonary artery pressure and pulmonary vascular resistance index were higher in group A ($P<0.05$). In postoperative period; mechanical ventilation, intensive care unit and hospital stay times were longer in group A ($P<0.05$). There was no difference in the incidence of pulmonary hypertensive crisis. Lung infection rate was higher in group B but sternal dehiscence was more common in group A($P<0.05$). Mortality rates were 6.3% and 5.1% in group A and B, respectively.
Conclusion: We conclude that patients with Down syndrome can undergo open heart surgery for the correction of congenital cardiac anomalies without increased mortality. Absolute sedation and maintaining optimum respiratory conditions are mandatory to prevent pulmonary hypertensive crisis. Incidence of sternal dehiscence and elongated intubation time were found to be patients with Down syndrome. Because of cooperation problems, special care in early postoperative period is necessary.

P - 9

OFF-PUMP CORONARY REVASCULARIZATION IN ELDERLY PATIENTS: EARLY RESULTS

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Objective: Off-pump coronary artery bypass grafting has comparable or superior results according to the conventional on-pump coronary artery bypass grafting. Because of high incidence of comorbid conditions, elderly patients suffer more from the harmful effects of cardiopulmonary bypass. Objective of this study was to determine the efficacy of off-pump coronary artery bypass grafting for patients 70 years of age and over.
Methods: From April 2001 to January 2005, off-pump coronary artery bypass grafting was performed on 47 patients and on-pump coronary artery bypass grafting was performed on 99 patients over 70 years of age. Medical records concerning the clinical and catheterization findings, operative and postoperative events were collected retrospectively.

Results: The off-pump group consisted of 37 men and 10 women, the mean age was 75.8±3.94 years, and the on-pump group consisted of 68 men and 31 women and the mean age was 73.7±2.9 years. Full revascularization was performed for all of the patients. Incidence of mortality and postoperative complications such as respiratory complications, renal failure and stroke were significantly lower in off-pump group. Intubation time, intensive care unit stay and postoperative stay were significantly shorter in the off- pump group.
Conclusion: Excellent clinical results and lower operative mortality rate can be achieved with offpump coronary artery bypass grafting in patients over 70 years of age. It has been suggested that offpump coronary artery bypass grafting surgery, by avoiding the adverse effect of cardiopulmonary bypass, may improve the risks of mortality and morbidity particularly in these higher risk elderly patients.

P - 10
OUTCOMES OF REDO-CORONARY ARTERY BYPASS GRAFTING - A SINGLE CENTER ANALYSIS
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Objective: The number of patients requiring a repeat CABG is on the rise. It is associated with an increased risk of mortality and morbidity as a result of manipulation of patent grafts, mediastinitis, and the presence of pericardial adhesions. The aim of the current study was to evaluate the outcome of re -cabg at a single institution as compared to first time cabg during the same time period.
Methods: From January 1998 to December 2005, 107 patients presented with stenocardia, 40 (37.4%, mean age, 59.5±8.2 years) of whom were qualified for repeated revascularization, whereas 67 underwent percutaneous coronary intervention. Surgical results were analyzed for mortality, morbidity, duration of the procedure, hospital stay, and event-free survival.
Results: The percentage of patients qualified for repeated revascularization remained stable during the entire observation period and was in the range of 0.35% to 1.53% and did not differ significantly from the population undergoing first time CABG. 31 patients (77.5%) were regularly scheduled for surgery, while 9 (22.5%) patients required an urgent procedure. All patients were operated on by consultants. Only one patient died (neurological complication), keeping the mortality in redo patients even lower than in the first time cabg group. Hospital stay did not differ significantly between the groups.
Conclusion: Even though patients requiring redo coronary artery bypass grafting are at a significantly higher risk as evaluated by Euroscore calculation and despite the fact that a high number of these patients underwent urgent surgery the outcome is favorable. Redo CABG can be performed safely in experienced hands.

P - 11
AORTIC VALVE REPLACEMENT IN AORTIC STENOSIS IN PATIENTS WITH LOW OUTPUT, LOW GRADIENT
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Objective: In patients with anatomically severe aortic stenosis and a low ejection fraction, aortic valve replacement relieves symptoms. Benefits of the aortic valve replacement in patients who present lowoutput, low-gradient and true small valve area are controversial.
Methods: We have operated on 14 patients with low output, low gradient. All of these patients have =0.30 left ventricular ejection fraction values, =30 mmHg mean transvalvular gradients and <1 cm^2 aortic valve area and NYHA class III. Aortic valve replacements have been applied using mechanical prosthesis to all patients.
Results: One patient died early postoperative period. Eleven patients discharged. Three patients have been repeatedly hospitalized five times cause of heart failure symptoms. Ten patients were alive at the end of theirs postoperative a year. Significant left ventricular ejection fraction value improvements have not been seen in the postoperative period. Functional capacities have improved significantly in most of the patients.
Conclusion: Aortic valve replacement can be performed at an acceptable risk level in patients with left ventricular systolic dysfunction and low output, low gradient, serious aortic stenosis. The effect of the surgery on to survival is under debate in this population. But life quality, functional capacity has improved in our patients.

P - 12
SPONTANEOUS LEFT CORONARY ARTERY DISSECTION
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Objective: Spontaneous coronary artery dissection is a rare cause of myocardial infarction. It occurs most commonly in young, otherwise healthy women, especially in the peripartum period. The exact incidence, etiology or pathogenesis is not known. The gold standard diagnosis method is coronary angiography for these patients. Most of the reported cases were diagnosed in the postmortem studies. The prognosis is poor in most cases and it has high morbidity and mortality rates. In this report, we describe a case of spontaneous acute coronary artery dissection presenting as acute myocardial infarction in a 39-year-old-woman, successfully treated with coronary artery bypass grafting.
Methods: A 39-year-old female with the diagnosis of rheumatoid aortic stenosis and aortic insufficiency admitted to our institution for chest pain started one hour before admission. Electrocardiography revealed an anterolateral subendocardial ischemia Urgent coronary angiography was done to the patient. The coronary angiography revealed a spontaneous left main coronary artery dissection extending to the left anterior descending artery orifice and occluding the circumflex artery orifice. She was taken to urgent operation. Left internal mammarian artery to left anterior descending artery and aorto to obtus marginal artery bypass besides aortic valve replacement was done to the patient.
Results: The postoperative period was uneventual. The patient was discharged on the seventh postoperative day without any complication.
Conclusion: Spontaneous coronary artery dissection should be kept in mind as an etiologic factor of ischemic cardiac disease of the young. Suspicion of such a lesion and early diagnosis besides urgent coronary angiography would change the prognosis of these patients.

P - 13
SUCCESFULL SURGICAL TREATMENT OF MASSIVE PULMONARY EMBOLISM FOLLOWING CORONARY BY-PASS SURGERY
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Objective: Acute massive pulmonary embolism (PE) is a fatal disease if not treated aggressively. Accurate diagnosis and treatment are very important for successful outcomes. Acute massive pulmonary embolism after cardiac surgery is very rare. This short report describes the use of emergent pulmonary embolectomy using cardiopulmonary bypass as an effective therapeutic approach to a massive pulmonary embolism occuring after on-pump CABG in two cases.
Methods: Two male patients (aged 66 and 76) underwent CABG. Postoperative period was uneventful and they were discharged in seventh day. In the 5'th and 17'th day after discharge they admitted to emergency with sudden-onset respiratory distress and chest pain. Vital signs were borderline and hematologic parameters were optimum in both patients. A diagnosis of PE was made due to arterial blood gas levels. Oxygen therapy and a continuous infusion of heparin were initiated at 1000 U/hour. Transthoracic echocardiography and computed tomography revealed massive pulmonary emboli.
Results: Patients were taken to the operating room in the 5'th and 7'th h after admission and the diagnosis was confirmed by transeusophagial echocardiography (TEE) under general anesthesia. Cardiopulmonary bypass (CPB) was established using femoral artery, femoral vein and selective superior vena cava cannulation in both patients. Aorta was not cross-clamped. A transverse arteriotomy was made in the main pulmonary artery and with the use of simple forceps, the huge saddle clots were extracted en bloc under direct vision from the main pulmonary arteries and right and left pulmonary branches. A 5F Fogarty catheter was used to check the distal branches for any residual emboli. Postoperative TEE did not revealed any residual thrombi. Patients were extubated in the 10'th and 8'th hour after the operation and warfarin sodium treatment was initiated in the first postoperative day. During hospitalization, venous doppler ultrasound revealed

no source of thrombi in lower extremities in our patients. The later courses were uneventful and patients were discharged in 8'th and 9'th postoperative day. Follow up period lasted for 12 and 14 months without any event. In follow-up, patients were free from dyspnea with NYHA class I. Thorax CT scans did not revealed any residuel thrombus.
Conclusion: As a result, rapid diagnosis and aggressive surgical approach offers great benefits rather than thrombolytic therapy and percutaneous intervention. CT and TEE provide easy and accurate diagnosis with high sensitivity and specificity. We believe that open embolectomy should be considered as the best option for acute massive PE especially in patients with a history of recent coronary bypass surgery.

P - 14
CORONARY BYPASS GRAFTING IN A CASE OF PERSISTENT LEFT AND ABSENT RIGHT SUPERIOR VENA CAVA
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Objective: Persistent left superior vena cava (PLSVC) is a common anomaly although simultaneous complete absence of right superior vena cava is rare. We report herein a 66-year-old woman who underwent a coronary bypass grafting (CABG) with a PLSVC draining into the coronary sinus with the absence of right superior vena cava.
Methods: A 66-year-old female patient was referred to our cardiovascular surgery unit for coronary artery bypass grafting. Her complaints were chest pain at rest and dyspnea on exertion. She had a three year history of antihypertensive medication and also thirty-year diabetes mellitus that was undercontrolled with insulin. The electrocardiogram was normal. Chest radiogram demonstrated cardiomegaly and probably absent right superior vena cava. The coronary angiographic evaluation showed three vessels coronary artery disease.
Results: After median sternotomy the pericardium was opened. On surgical exploration, it was noted that the coronary sinus was dilated. A left PLSVC which appeared to drain into the coronary sinus and the absence of right superior vena cava were identified. Due to the absence of right superior vena cava, central venous catheter was also seen in the innominate vein. CABG was performed under cardiopulmonary bypass. Four vessel revascularization was done to the patient (Left internal mammary artery was used as the conduit for LAD while long saphenous vein graft was used for the posterior descending artery, circumflex artery and the first diagonal artery anastomosis). After rewarming period, the rhythm was atrial fibrillation with slow ventricular response. For this reason, epicardial pace wire was placed to the right ventricular wall. Her postoperative recovery was uneventful.
Conclusion: CABG can be performed safely without any technical difficulty in PLSVC with absence of right superior vena cava.

P - 15
SURGICAL LEFT VENTRICULAR EPIMYOCARDIAL LEAD IMPLANTATION FOR BIVENTRICULAR STIMULATION IN PATIENTS WITH CONGESTIVE HEART FAILURE
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Objective: Cardiac resynchronization therapy (CRT) is an established method to decrease mortality and hospitalization in patients with congestive heart failure (CHF). Biventricular pacing can be achieved by surgical epimyocardial lead placement. We report our experiences and the responding rate in our patients.
Methods: From March 2003 to November 2005, 42 patients with CHF received biventricular pacemakers in our institution. In 14 of these patients (6 women, 8 men, age 51 to 79 years), surgical procedures for placing the left ventricular lead were performed (13 patients with left lateral minithoracotomy, 1 patient with median sternotomy and additional OPCAB surgery). Nine patients had dilative cardiomyopathy (DCMP), 5 patients coronary artery disease (CAD) - two of them with previous CABG procedures - and all had highly impaired LV function < 30%, sinus rhythm, complete LBBB and ORS >150 ms. Thirteen patients were in NYHA class III or IV preoperatively.
Results: All 14 patients survived and were discharged from hospital. Postoperatively, in 12 of 14 patients improved LV function, lower BNP levels and echocardiographically documented remodelling of the left ventricle were documented. Two of the patients were non-responder to CRT, one for elevated stimulation threshold of the left ventricular lead and one for unknown reasons. Follow-up showed all 14 patients in NYHA class 0, I or II.
Conclusion: Surgical left ventricular epimyocardial lead implantation is a safe and effective procedure in cardiac resynchronisation therapy. Operation time is short, and the responding rate is acceptable. New approaches are providing even better cosmetic results.

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NATIVE INFECTIVE ENDOCARDITIS: WHICH DETERMINANTS OF OUTCOME AFTER SURGICAL TREATMENT REMAIN
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Objective: Surgical therapy of native infective endocarditis is still considered as a particular challenge, due to remaining morbidity and mortality up to 20%. Further risk analysis and characterization of clinical features is of great importance for further improvement of surgical results. The aim of this retrospective study was a risk analysis concerning clinical features of the pre-, intra and postoperative period.
Methods: Between 02/97 and 12/2003 165 patients (130 male, 35 female, age 55.5±13.8 years) were referred for surgical therapy of infective endocarditis in our institution. Preoperative, intraoperative and postoperative features were evaluated on their influence on the early postoperative course and the mid-term follow-up.
Results: In the majority of pts the aortic valve was infected (n = 83, 50.3% of pts), followed by mitral valve (n = 33; 20.0%), tricuspid valve (n = 10, 6.0%) and pulmonary valve (n = 2; 1.2%). Double valve affection was recorded in 37 pts (22.4%). Streptococci (n = 66, 40.0%) and staphylococci (n = 66, 40.0%) were the most common pathogens. The overall hospital mortality rate was 10.9% (n = 18), during the follow-up (mean follow up 3.3±2.5 years) further 20 pts (12.1%) died. Main predictors for hospital mortality in multivariate analysis were older age (P = 0.01), prolonged ICUstay, prolonged intubation (P = 0.03; P = 0.02) and the continuous postoperative need of alphacatecholamin medication (P<0.01. Predictors of overall mortality were older age (>70 years) and diabetes as significant variables (P = 0.03; P = 0.03). Reinfection occurred in 6.1% of patients (n = 10). Actuarial freedom from recurrent infection was 97% at 1 year and 93.9% at 5 years.
Conclusion: Surgical therapy of infective endocarditis is associated with good clinical results in the early and mid-term follow-up. Predictors of outcome particular include preoperative risk constellation or comorbidity (age, diabetes) and variables of the immediate postoperative course.

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OFF-PUMP CORONARY SURGERY IN WOMEN
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Objective: to compare early and long-term results of OPCAB and CABG with CPB in women.
Methods: Between 1994 and 2005 we have operated on 108 women for coronary disease: 49 of them were operated conventionally (CABG with CPB) - control group; 59 of them were operated using OPCAB technique - off pump group. Mean EuroScore in control group was 6.2±1.2%, in off pump group 4.3±1.0%. 18.3% of control group required urgent operation for acute coronary syndrome while in off pump group urgent interventions performed in 5.1%. There was no significant difference among two groups of age and comorbidity.
Results: The number of distal anastomoses was 2.9±0.5 in control group and 2.5±0.6 in off pump group. Mechanical ventilation time after operation was 15.0±5.5 h in control group and 8.4±3.5 h in off pump group (P<0.05). Pneumonia comlplicated early postoperation period in 6.1% patients of the control group, while in off pump group we never faced to this complication. Nonfatal myocardium infarction occurred in 2.2% of control group and never in off pump group. Wound and neurological complications, mean stay at hospital did not significantly differ in both groups. There were 3 (6.1%) hospital deaths in control group and 4 (6.8%) in off pump group (all of them occurred when we just began off-pump technique, "learning curve"). The main cause of deaths was acute heart failure right after operation. Long-term results were studied in 62 patients (from 0.5 to 9 years after operation, mean 5.2 years). We found that avoidance of CPB does not influence long-term outcome. Angina recurrence of high degree occurred

in 20 patients (32.2%). Most of them (15) have diabetes mellitus. Detailed analysis showed, that optimal long-term results have a patient after CABG who: having been regularly observed by cardiologist, follows special diet, controls blood pressure, lipoproteids levels, blood sugar content (in case of diabetes mellitus), strictly takes prescribed medicines, especially statins. Those women who refused of these recommendations have the highest incidence of angina recurrence.
Conclusion: Off pump CABG in women in comparison with conventional CABG significantly reduces the risk of pulmonary complications, but may increase the risk of fatal heart failure, therefore it must be careful selection of the patients to this procedure. Long-term results do not depend on avoidance of CPB during CABG. The main factor influencing late results remains discipline of the patient with strict following to medical recommendations.

P - 18
THE EFFECT OF OFF-PUMP CORONARY REVASCULARIZATION ON THE LEFT VENTRICULAR EJECTION FRACTION IN SEVERE LEFT VENTRICULAR DYSFUNCTION
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Objective: Impaired left ventricular function affects the short term mortality in coronary artery bypass surgery. But in these patients, left ventricular functions improve after operation. We studied the early postoperative outcomes of on-pump and off-pump postoperative outcomes in the patients with left ventricular dysfunction.
Methods: We prospectively analyzed the data of the 137 patients with left ventricular ejection fractions below 30%. There were 79 patients in the off-pump coronary artery bypass group and 58 patients in the conventional on-pump coronary artery bypass group.
Results: Mean age of the OPCAB group was 65.77±9.83 years, whereas it was 61.31±9.74 years in the CCABG group (P = 0.009). Preoperative characteristics of the groups were similar. The preoperative mean ejection fraction of the off-pump group was 25.08±4.20%. Mean ejection fraction of the on-pump group was 26.53±3.26%. Six patients died in the early postoperative period, 4 (6.8%) in the on-pump group and 2 (2.5%) in the off-pump group. Mean number of distal anastomosis was 1.91±0.89 in off-pump group and 2.55±0.95 in on-pump group (P<0.001). Postoperative echocardiographic evaluation of the patients in the 6th month of discharge showed significant increases in the ejection fractions from 25.08±4.20% to 31.49±4.93% in the off-pump group and from 26.53±3.26% to 33.13±3.31% in the on-pump group (P<0.001). Early mortality ratios were similar in both groups. The need for blood transfusion, length of ventilator support and postoperative length of stay were significantly higher in the on-pump group.
Conclusion: Postoperative left ventricular ejection fraction ratios increased in both the off and onpump groups. However, off-pump decreased the postoperative complications. Therefore, off-pump procedure might be chosen in severe left ventricular dysfunction.

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A METHOD TO PREDICT RESULTS OF SURGERIES ON MAIN ARTERIES OF LOWER EXTREMITIES
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At present obliterating atherosclerosis of vessels of lower extremities (OAVLE) is still one of the most important problems in medical and social care. According to data of western authors lethality with natural behavior of the disease at the stage of critical ischemia of extremities makes 20% for the first year. Rest of the patients tolerate the given operative treatment. 45% of patients used to undergo amputation, for the rest reconstruction operation is performed on the arteries of extremities (J.V.R.G.). In postoperative period from those who have undergone reconstruction of the main arteries of lower extremities only 75% show “recovery” (60%) or improvement (15%) [J.Dormandy, 1996; J.Holdsworth, 2000].
Materials and Methods: We have studied peripheral resistance in the main arteries of 272 lower extremities in 209 patients at the level of structures which were performed during successful surgical treatment in 7 days after the surgery. Average age of patients was 58.4 +4.2 years. 5 of them were women, the rest - men. Before the surgery the stage of OAVLE according to Pokrovsky made 67.9% -II b, 25.8% -III, 6.3% -IV. Resistance was assessed according to the formula of the RPR = $100\%\text{-}(V_1^2\text{-}XV_2^2)t_1/(V_1^2\text{-}V_0^2)t_2$ x100%, where RPR is the rate of peripheral resistance. Data for estimation were received from a standard Doppler US imaging. The examined patients were under a dynamic follow up within 2 years, results of their operative treatment were estimated. Further we compared the received results.
Results: Aiming to illustrate the received outcome we made up the data table 1.

Site of Injuries	Number of observations	Number of follows up with the increased RPR (>63%)	
Aorto-femoral segment	166	72	
Femoralpopliteal segment	06	52	
TOTAL	272	124	
	% of follows up with the increased RPR	Number of patients who have overcome postoperative thrombosis	Concurrence of thrombosis cases with the increased RPR, in %
Aorto-femoral segment	43.4	53	73.6
Femoralpopliteal segment	47.8	38	73.1
TOTAL	45.6	91	73.4

Person correlation 0.7 P<0.01.

Discussion: Correlation between results of the RPR and data of dynamic follow up is statistically reliable. Although it is necessary to emphasize that a correlation connection can be more strict, since in the study we considered indices of the RPR > 63% in patients with a small period of follow up. Besides, received results of the frequency of occurrence of the increased resistance in the arteries of lower extremities coincide completely with statistic data of western authors regarding clinical results of operative treatment for patients with OAVLE.
Conclusion: 1. The offered method for assessment of the peripheral resistance in main arteries of lower extremities is statistically reliable in order to make prognosis for results of surgical treatment in patients with OAVLE.
2. Non-invasive examination and assessment of the RPR in a postoperative period will allow to correct in good time the conducted therapy.

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INTRACORONARY SHUNT REDUCES POSTOPERATIVE TROPONIN LEAKS: A PROSPECTIVE RANDOMIZED STUDY
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Objective: The purpose of this study was to evaluate whether intracoronary shunt usage reduced the myocardial damage on the basis of the cardiac markers when compared with the shuntless anastomosis in OPCABG surgery of isolated left anterior descending artery lesions.
Methods: 40 patients who had stable angina with isolated LAD coronary artery lesion undergoing OPCABG surgery were randomized into two groups. Shunt group consisted of 20 patients who had OPCABG using intracoronary shunt whereas the shuntless group consisted of 20 patients who underwent OPCABG without using intracoronary shunt. Cardiac troponin I, CK, CK-MB before and 24 h after the surgery were assessed in the groups.
Results: There were no deaths in the study. The two groups were similar with respect to sex and age. Duration of LIMA-LAD anastomosis was significantly higher in the shunt group (P = 0.01). There was no significant difference between the groups concerning the preoperative and postoperative CK and CK-MB levels. The preoperative troponin I levels of the groups were not different (P = 0.238; NS) whereas, postoperative levels of this marker was significantly higher in the shuntless group (P = 0.003).
Conclusion: Intracoronary shunt reduced the postoperative troponin I levels significantly, so it may be indicated in the patients who are thought to be susceptible to transient ischemia.

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AORTIC VALVE REPLACEMENT IN PATIENTS WITH COEXISTING CORONARY DISEASE

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Objective: to evaluate results of aortic valve replacement in patients with coronary disease.
Methods: From March 1997 to December 2003 60 patients with coronary disease underwent aortic valve replacement. Mean age was 60±8.1 years (42-79 years), 41 (68%) men. 35 (58%) patients were 60 years and older. Aortic valve dysfunction was caused by rheumatism, congenital pathology, endocarditis and atherosclerosis. In 31 (51.7%) patients prevalence of heart insufficiency, and in 29 (48.3%) patients the prevalence of coronary disease was marked. 22 (36.7%) patients had myocardial infarctions. 29 (48.4%) patients had III-IV functional class angina, in 13 (21.6%) patients the angina was secondary to aortic stenosis. 70% of patients had III-IV functional class of heart failure (NYHA). 37 (61.8%) patients had normal LVEF. Thirty-three (55%) patients are had heart arrhythmias. According to the data of coronary angiography, 24 (40%) patients had 3-vessel coronary disease. In 38% cases only the LAD and in 35% - the RCA were involved. All patients underwent CABG and aortic valve replacement. We used MedEng, Carbonics, ATS Medical, St. Jude Medical and Carpentier-Edwards prosthetic heart valves. Left internal mammary artery was used in 41 (68.4%) patients, radial artery in 9 (15%) patients, and saphenous vein in 40 (66.7%) patients.
Results: Hospital mortality was 8.3%. 46 (76%) patients required inotropic support (epinephrine, dopamine), 34 (56.7%) patients developed low cardiac output syndrome, and 3 (5%) patients required IABP. Arrhythmias were marked in 23 (38.4%) patients. 7 (11.6%) patients developed myocardial infarction. Neurological complications were marked in 8 (13.4%) patients. 10 (16.7%) patients required to stay in the intensive care unit for 5 days or more.
Conclusion: Presence of coronary heart disease increases risk of mortality and complications in patients, undergoing aortic valve replacement. CABG must be performed in all patients with coexisting coronary heart disease and aortic valve dysfunction, requiring aortic valve replacement.

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IMPACT OF DIABETES ON PERIOPERATIVE OUTCOME IN PATIENTS FOLLOWING ISOLATED AORTIC VALVE SURGERY - PRELIMINARY RESULTS

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Objective: Diabetic patients have poorer short-term outcome after coronary artery surgery [1]. However, little is known about the impact of diabetes mellitus on short-term outcome following aortic valve surgery. The aim of this study was to compare postoperative complications and 30-day mortality in diabetic (D) and non-diabetic (ND) patients following aortic valve surgery.
Methods: Patients with acute bacterial endocarditis and those in a critical preoperative condition
were excluded. Of the 330 consecutive patients who underwent first-time, elective, isolated aortic valve surgery over a 3 year period, 42 patients (12.7%) were diabetic. To allow comparisons between groups, D and ND patients were randomly matched for age on the 1:2 basis, so 126 patients (42 D and 84 ND) were analyzed. Perioperative complications and 30-day mortality were compared. The t-test and two-tailed Fischer test were used, $P<0.05$ was considered significant.
Results: Mean preoperative EUROscore was similar in D and ND patients (5.9±2.0 vs. 5.4±2.1, $P = 0.2$). The isolated and cumulative number of patients with the most common perioperative complications for diabetic and not-diabetic patients are: ??-?ventilation >24 h: 3 pt (7.1%) vs. 5 pt (6.0%), $P = 0.79$ stroke: 1 pt (2.4%) vs. 2 pt (1.2%), $P = 0.61$ renal replacement: 1 pt (2.4%) vs. 2 pt (2.4%) $P = 1.0$ infection: 0 pt (0.0%) vs. 1 pt (1.2%) $P = 0.67$ low cardiac output: 2 pt (4.8%) vs. 6 pt (7.1%) $P = 0.46$ ICU stay>5 days: 4 pt (9.5%) vs. 2 pt (2.4%) $P = 0.09$ hospital stay(days): 7.9±3.6 vs. 7.7±4.2 $P = 0.79$ complications (all): 4 pt (9.5%) vs. 7 (8.3%) $P = 0.82$ death: 1 pt (2.4%) vs. 2 pt (2.4%) $P = 1.00$.
Conclusion: Perioperative outcome in diabetic and non-diabetic patients is similar following isolated, elective aortic valve surgery.
Reference: [1]. Carson JL, et al., J Am Coll Cardiol 2002; 40: 424.

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PREOPERATIVE HBA1C LEVELS AND POSTOPERATIVE GLYCAEMIA CONTROL FOLLOWING CORONARY ARTERY SURGERY IN DIABETIC PATIENTS

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Objective: HbA1c reflects long-term glycaemic control, is related to diabetic morbidity and mortality and also predicts length of stay of patients admitted for coronary artery bypass surgery [1]. The aim of this study was to establish what are the relations between preoperative HbA1c and postoperative glycaemia control in diabetic patients following coronary artery surgery.
Methods: Patients with diet-controlled diabetes and those in a critical preoperative condition were excluded. Of the 126 consecutive diabetic patients who underwent first-time coronary artery surgery in a period of 11 months and had their HbA1c assessed preoperatively, blood glucose levels were registered every 2 h in the first postoperative day. Mean glucose levels (all measurements) and peak glucose levels as well as mean overall insulin consumption (per patient - for a given time period) were calculated for each patient and compared between the groups. Descriptive statistics, t-test and Pearson's correlation were used and $P<0.05$ was considered as significant. Preoperative HbA1c >7% was a threshold for uncontrolled hyperglycemia and was found in 71% of patients.
Results: Mean age of patients with HbA1c >7% and HbA1c <7% was similar (64.9±8.7 vs. 63.8±7.9, $P = 0.51$) The same was found in the preoperative EUROscore (4.4±2.4 vs. 4.1±1.9, respectively, $P = 0.50$). Mean glucose (mmol/L) and peak glucose (mmol/L) were similar in both groups (8.5±2.4 vs. 8.0±2.2), (12.0±2.4 vs. 11.2±3.1, $P>0.05$). Insulin consumption (U) was significantly higher in patients with HbA1c > 7% (58.9±27.5 vs. 42.5±23.8, $P<0.01$). Preoperative HbA1c was not linked to the mean and peak postoperative glucose levels, but showed positive correlation with the postoperative insulin consumption ($P = 0.03$).
Conclusion: Higher preoperative HbA1c levels are not linked to worse glycaemia control following coronary artery surgery but these patients require more insulin in the postoperative period.
Reference: [1]. Medhi M., et al. Heart Dis; 2001:77.

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LONG-TERM FOLLOW UP OF PATIENTS WITH INFECTIVE ENDOCARDITIS AFTER VALVE REPLACEMENT

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Objective: Infective Endocarditis (IE) is a problem both for cardiologists and cardiosurgeons. Among its dispute aspects are the national, regional, ethnic, morbidity and mortality differences of the patients with IE after valve prosthetic appliance (VPA). ?? Objective: to study long-term results of VPA in patients with IE in the North-West Region of Russia.
Methods: Follow-up results (up to 17 years) of 144 patients with IE having been operated by one cardiosurgial term. Material includes 144 cases: 71 (49.3%) with aortic (AV), 41 (28.5%) with mitral (MV) and 32 (22.2%) with both valves (AV + MV) replacements.
Results: Among 28 dead cases there were 4 extracardial. Chronic heart failure (CHF) was registered in 78% of patients. It was up to III f.c. (NYHA) in those with AV + MV prosthesis. It was a cause of death in 18 patients. All of them had CHF of III - IV f.c. preoperatively.?? Valve-dependent complications were in 30 (20.8%) of patients. They included 6 cases of paravalvular fistulas, 15 cases of pulmonary embolism (one mortal), hemolytic anemia (1). Eleven reoperations were made for prosthetic thrombosis (3), its destruction (2), pannus (1), paravalvular fistula (5). Six of them were life-saving. Relapses of IE were only in 4 cases.
Conclusion: Well-timed surgery for IE prevents progress of CHF. During the first 6 years after the operation patients with IE after VPA need more attention because of the higher probability of complications.

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UNDERGOING ACBG OPERATION, ASD AND CONGENITAL DIAPHRAGMATIC HERNIA REPAIR AT THE SAME SESSION IN A PATIENT WITH CONGENITAL DIAPHRAGM HERNIA, PERICARDIAL AGENESIS, MEDIASTINAL PLEURAL AGENESIS

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Objective: Congenital diaphragmatic hernia and accidentally founded peroperatively ASD repaired and performed ACBG operation in a step. We analyzed it in the light of findings from literature.
Methods: 68 years-old, male, patient with complaints of dyspnea and chest pain applied to our hospital and hospitalized with acute coronary syndrome. Critical stenosis was founded in LAD and Cx arteries in coronary angiography and founded diaphragm hernia in thorax CT. We planned to repair congenital diaphragm hernia and perform ACBG at the same session. In the operation, we discovered that intra abdominal organs were covered with peritoneum at the anterior mediastinium and the heart's apex rotated to the posterior mediastinium of left hemithorax, left lung has collapsed and there was no left pericardium and mediastinal pleura. Vancomycin and cephaperosone-sulbactam were given antibio-prophilaxy. Firstly, adhesions of diaphragmatic surface of heart and posterior diaphragmatic border leased to realize the defect border. We used cell-saver for bleeding control. Diaphragmatic defect was repaired with pyrolene mesh graft. Standard aorta-caval canulation has been done and cardiopulmonary by-pass started. Because of the heart's apex over-rotation through the posterior of left hemi thorax, we couldn't use LIMA graft in situ and anastomosed Cx saphen vein graft. We noticed light venous line blood and decided to explore right atrium due to suspicion of ASD. ASD was found and repaired.
Results: Until the 5th postoperative day, he couldn't wean from respirator, because of the low PaO2 level and respiratory failure. He was discharged from hospital at the 14th day and had no complains six months later.
Conclusion: Congenital diaphragmatic hernias prevalence is 1/2100-5000 of births. Neurological and major cardiac anomalies occurs 20-30% of the patients. Congenital diaphragmatic hernia and isolated ASD were only mentioned as sporadically. Left pericardial defects including agenesis occurs 57% of all pericardial defects and pericardial agenesis is mostly seen in left side. Generally, it is asymptomatic, but pherenic nerve localization may be change on this kind of defects and especially you have to be careful with harvesting LIMA graft. LIMA graft can not be used in situ due to herniation and rotation of the heart. Long standing compression atalectasis causes the patient to have respiratory failure on postoperative course.

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RULE OF CATECHOLAMINE THERAPY IN THE TREATMENT OF ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING
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Objective: Postoperative atrial fibrillation has an incidence of 11 to 50% in patients after CABG procedures. It leads to a prolonged hospital stay and to higher treatment costs. Antiarhythmic drug therapy as well as cardioversion are not always successful, and some patients need anticoagulation therapy when discharged from hospital. We report our experiences with additional catecholamine therapy in the treatment of postoperative atrial fibrillation.
Methods: In 2004, 1038 patients received CABG in our institution. All patients were operated on cardiopulmonary bypass (CPB) and with cardioplegic arrest (Calafiore). In 266 (25.6%) patients, atrial fibrillation (AF) was observed postoperatively. We analyzed 139 patients with AF in two groups. Preoparative ejection fraction, perfusion time, aortic clamping time and reperfusion time as well as preoperative drug therapy were similar in both groups. In group I (93 patients; 71 men (76.3%), 22 women (23.7%), age 49 to 84 years; mean 3.3 bypasses per patient), antiarrhythmic drug therapy was performed with betablockers, amiodarone, verapamil and digitalis. Group II (46 patients; 33 men (71.7%), 13 women (28.3%); age 44 to 77 years; mean 3.5 bypasses per patient) was additionally treated with mild catecholamine therapy (adrenalin, noradrenalin, dobutamin; 2–5 mg/kg/min) according to blood pressure, respiratory insufficiency, diuresis and venous saturation.
Results: In group I, mean duration of postoperative atrial fibrillation was 63.9±6.5 h while in group II it was 13.5±2.3 h ($P < 0.001$). Additional electrical cardioversion therapy was performed with 13 patients (14%) of group I and failed in 5 of these patients, who were discharged with anticoagulation therapy. 11 patients had a prolonged hospital stay for the reason of atrial fibrillation. In group II, electrical cardioversion therapy was successfully practised in 6 patients (13%). All patients of group II were discharged in time from hospital with sinus rhythm in the ECG.
Conclusion: Additional catecholamine therapy in the treatment of patients with atrial fibrillation after CABG procedures is effective. It leads to a higher cardioversion rate, lower treatment costs and it shortens hospital stay.

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CORRELATION BETWEEN ACTIVATED CLOTTING TIME AND ACTIVATED PARTIAL THROMBOPLASTIN TIME IN CARDIAC SURGEY PATIENTS WITH EXCESSIVE POSTOPERATIVE BLEEDING
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Objective: Heparin anticoagulation is utilized during and after cardiac surgery procedures. The short half-life of heparin, the importance of maintaining therapeutic anticoagulation, and the time delay inherent in the processing and retrieval of the activated partial thromboplastin time (aPTT) by the hospital laboratory has generated interest in point-of-care heparin monitoring. We evaluated the role of the activated clotting time (ACT)(Hemochron Celite and Kaolin) aPTT, both currently available for monitoring heparin reversal in postoperative period in patients with excessive bleeding.
Methods: In an observational analytic study from March to November 2005, 60 cases of post cardiac surgery bleeding in the intensive care unit were enrolled in the study. The ACT and aPTT were obtained from the same sample of blood in these patients and compered with each other. Clinical decisions regarding heparin reversal with protamine on ACT results were compared with those based on aPTT results. In the cases with extra need for heparin reversal with protamine, after protamine administration, these tests were repeated again and compared respectively. Data were analyzed by SPSS.10 software using appropriate tests including t paired and regression tests. The results were evaluated as the mean ±SD and considered statistically significant for $P<0.05$.
Results: Heparin dosage adjustment decisions based on ACT results agreed with decisions based on aPTT results 76-88% of the time.?? The correlation between the aPTT and ACT (r = 0.65) was good ($P<0.01$). Mean±SD ACT was 189±24 and mean aPTT was 47±12. In 14 patients with excessive bleeding the aPTT showed a normal range. After protamine administration in 31 cases, the mean ACT declined to 112±9 but the mean aPTT was only reduced to 42±7 ($P<0.001$ and $P>0.05$ respectively).
Conclusion: Considering the time delay inherent in the processing and retrieval of the aPTT by the hospital laboratory and the results of this study indicate that ACT is the method of choice for monitoring protamine requirements in post cardiac surgery bleeding patients.

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OFF-PUMP CORONARY ARTERY BYPASS IN MULTI-VESSEL DISEASE, EFFECT OF EJECTION FRACTION ON EARLY AND MIDTERM MORTALITY AND MORBIDITY
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Objective: LVF is an independent predictor of operative mortality. The outcome of myocardial revascularization is greatly affected by the severity of impairment of cardiac function.?? The present study was taken to find out the early and midterm mortality and morbidity among patients with different degrees of myocardial function undergoing off-pump bypass.
Methods: 142 patients who underwent isolated coronary revascularization were divided into three groups according to ejection fraction. 48 patients with EF<30% (group I), 48 patients with an EF between 30 - 40% (group II), and 46 patients with an >40% (group III). Clinical, operative and post operative outcome were compared. Patients were followed up to find midterm survival and control of symptoms.
Results: The mean age for all groups was 56.5±9.8 years. Group I had the highest percentage of patients with CHF (79.2%), COPD (16.7%), and recent MI (68.8%).?? Coronary vessel involvement was similar among the three groups. Group I had a lower percentage of complete revascularization ($P< 0.001$) and fewer grafts performed ($P = 0.036$) when compared with group III. Morbidity was similar among all groups. The incidence of AMI and AF were slightly higher among patients in group I. Hospital mortality for groups I, II, III were 6 (12.5%), 0 (0.0%), 0 (0.0%), respectively. 95.6% of patients were followed up, the mean follow-up was 27.6±17.6 months (range from 7-69 months). The incidence of angina in groups I, II, and III were 20%, 6.5%, and 2.2%, respectively. Symptoms of heart failure were seen in 17.5% of patients in group I, 6.5% in group II, and 2.2% in group III. Cardiac interventions among group I, II, III was 12.5%, 4.3% and 2.3%, respectively. Redo CABG was higher in group II (4.3%) compared to 2.5% in group I, and 0% in group III. Late mortality in group I was 5.0% (n = 2) compared to 2.2% (n = 1) and 2.3% (n = 1) in group II and III, respectively.

Conclusion: Off-pump bypass can be used among patients with different degrees of myocardial function. Patient with EF>40% and those with 30 - 40% have similar results. Those with EF<30% have a higher incidence of mortality and morbidity. However the difference was not statistically significant. Although, complete revascularization was not encountered among patients with EF<30%, 95.0% of these patients were alive and 80% had good control of angina.

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PREVENTING ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING WITH MAGNESIUM THERAPY

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Objective: Atrial fibrillation (AF) is the most common complication that is seen after cardiac surgery. The etiology of AF after coronary artey bypass grafting (CABG) is still unclear. Optimal dose and timing of magnesium infusion also need clarification. The aim of the study was to investigate the effect of magnesium sulfate ($MgSO_4$) on postoperative AF.
Methods: Hundred patients who underwent elective and first time CABG were divided into two groups. Patients in the magnesium group (n = 50) received 1.5 gram (6mmol) MgSO4 infusion in 100 ml 0.9% NaCl solution (in 4 h) the before surgery, just after cardiopulmonary bypass and once daily for four days after surgery. The control group patients (n = 50) received only 100 ml 0.9% NaCl solution (in 4 h) at the same time periods
Results: Postoperative AF developed in 2 (4%) patients in the magnesium group and in 10 (20%) patients in the control group (P = 0.02). The arrhythmia started, on average, 48.2±16 h postoperatively. Length of hospital stay was not significantly different in patients with AF compared with patients without AF.
Conclusion: The usage of magnesium in the preoperative and early postoperative periods is really effective in reducing the incidence of AF occuring after CABG.

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TWIDDLER SYNDROME: AN INFREQUENT CAUSE OF PACEMAKER MALFUNCTION

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Objective: Twiddler's syndrome refers to a displacement of pacemakers/defibrillators' electrodes due to intentioned/unintentioned rotation/manipulation of the pulse generator inside the subcutaneous pocket.?? Our objective is to present one of these unusual cases and review the litterature on this field.
Methods: A 69-year-old female, with a previously implanted VDD pacemaker at a different institution, due to complete A-V block, came to our department (via Emergency ward) complaining of diaphragmatic contractions. After accurate checking of the system, a complete failure of atrial sensing and ventricular sensing/pacing was noted. The X-ray showed a great displacement of the electrode, with its tip located at the superior vena cava, thus resulting in intermittent stimulation of the phrenic nerve and subsequent diaphragmatic contractions. Initially questioned about conscient manipulation of the pocket, the woman denied this possibility. The patient underwent a reoperation, under local anesthesia, to replace the electrode. At this time, two things were noted: 1- An unusually big subcutaneous pocket; 2- The generator was not fixed to the pectoral muscle, thus permitting its free movement.?? Both things were corrected.
Results: The postoperative period was uneventful. After verifying the normal function of the complete pacing system, the patient was discharged next day.
Conclusion: Although infrequent, Twiddler's syndrome is a cause that should be addressed in case of pacemaker/defibrillator disfunction. It was first described in 1968 and usually caused by nervous, conscient and external manipulation of the pacemaker. The vast majority of patients are old and obese females with lax subcutaneous tissue. In patients at risk, a small pocket and the suture of the generator to the pectoral muscle are mandatory. Variations of this syndrome have been described with different implantable devices (subcutaneous infusion systems, defibrillators, etc.).

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NEW METHOD FOR OPERATION OF CABG ON BEATING HEART WITH USING OF PARTIAL EXTRACORPORAL BYPASS OF RIGHT VENTRICLE

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Objective: To estimate effectiveness of using ofpartial extracorporal bypass of right ventricle (PEBRV) during CABG on beating heart.
Methods: analized data from 36 patients undergone CABG on beating heart using PERVB. Hemodinamic disorders, coming from unscrew of heart were corrected by extracorporal support of right parts of the heart with perfusion speed 2.5 l/min. Middle artery blood (MAP) pressure, HR, CI, and inotropic drugs doses were estimated. CABG was performed with using of miostabilisators "Octopus".
Results: After induction anaestesia MAP level was 86+2.4 torr. Before PEBRV MAP hadn`t significantly changed. During unscrew of heart MAP decreased for 5% from baseline(80.9+1.6 torr). During making of proximal anastomoses MAP increased (82.4±2.1 torr), without reliable difference from baseline and preceding level of MAP. In 30 min after stop of PEBRV MAP was 85.3+ 1.8 torr. HR during first phase was 69.4+2.5 bpm. During next three phases HR had not significantly changed, being reliably higher than baseline, during last phase it decreased to 85.3+2.5 torr. After unscrew of heart during PEBRV CI decreased and reached its minimum level (2.33+0.07 $l/min/m^2$), with differ from baseline 11%. After heart was returned in its physiological position, CI had grown. CI inspite of decrease of heartrate reached level reliably 14% higher than baseline.
Conclusion: PEBRV lets minimize using of inotropic drugs. Stable hemodynamics gives good vision of place of making of distal anastomose and gives possibility to wide indications for CABG on beating heart in patients with baseline low contraction ability of myocardium.

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CHARACTERISTICS OF METHABOLIC REACTIONS DURING MIOCARDIAL REVASCULARIZATION WITH USING OF EXTRACORPORAL RIGHT VENTRICLE BYPASS

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Objective: New method of CABG on beating heart has been used in Novosibirsk Research institute of circulation pathology since 2001 with using of extracorporal bypass of right ventricle (EBCRV). The objective is to investigate particularities of metabolic reactions in operations of CABG on beating heart with using of ECRV.
Methods: The EBCRV was used to prevent hemodynamic disorders appearing because of unscrew of heart/ CaBG was performed in 25 patients. Dynamics of glucose concentration, lactate, piruvate, lipid exchange (free lipid acids, cholesterol), peroxide oxydation of lipids (primary and secondary products of POL, and antioxydation system) were investigated during different stages of operation and in early post operational period. Concentration of cortisol was estimated in order to estimate if anesthesia is adequate and to research the adaptive system of organism.
Results: During the stages of the operation and in early postoperative period blood concentrations of lactate and piruvate were stable, that indicated to absence of increasing of deficit of oxygen during all stages of CABG with use of ECBRV. Metabolic response for surgical stress is characterized with moderate activation of lipolise and POL. Antioxydant protect during stages of operation is supplied by antiperoxyde protect, and in post operational period it is supplied by antiradical protect. The increase of cortisol concentration during stages of operation is in limits of stress norm for patients with CHD.
Conclusion: It can be concluded that using of extracorporal bypass of right ventricle in operations of CABG on beating heart supplies stable aerobic metabolism during all stages of operations. By third day after operation metabolic changes, which were moderate and reversal became normal.

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PULMONO-ATRIAL SHUNT AND LOW-RESISTANCE LUNG ASSIST TO REVERSE RIGHT VENTRICULAR FAILURE. AN EXPERIMENTAL STUDY

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Objective: In right ventricular failure a decrease of right ventricular afterload and improvement of left atrial filling could be achieved by a pulmonary artery-left atrial-shunt. To avoid cyanosis, artificial oxygenation of the shunted blood is necessary. This study investigated the use of a pulmono-atrialshunt together with a low resistance lung assist device in experimental right ventricular failure.
Methods: In 11 pigs a pulmono-atrial-shunt was created by a homograft. The lung assist device (Novalung; Germany) was installed from the femoral artery to femoral vein in 5 pigs (serial; Group I) and into the pulmono-atrial-shunt in 6 pigs (parallel; Group II). Right ventricular failure was induced by pulmonary artery banding. Right ventricular performance and hemodynamics were determined by the use of pulse contour analysis (Pulsion, Germany) as well as direct pressure lines. Flows were monitored by ultrasonic flow probes; serial blood gas analyses were taken. The observation period was 90 min after declamping the shunt and the lung assist.
Results: In both groups a stable right ventricular failure could be generated with a significant decrease of cardiac output and right ventricular ejection fraction. After declamping the pulmono-atrialshunt and the lung assist in Group I cardiac output trended to increase but neither right ventricular filling pressures nor arterial pressure changed significantly. Despite the lung assist pO2 trended to decrease. In Group II cardiac output and arterial pressures increased significantly ($P<0.05$; *t*- test) under a shuntflow of 2.3- 2.6 l/min. Right ventricular ejection fraction and left ventricular volume increased significantly, whereas right ventricular filling pressures remained unchanged. pO2 and mixed Svo2 significantly increased. Taken together the animals in Group II recoverd from cardiogenic shock over the observation period. These effects were immetiately reversed when the shunt was clamped again.
Conclusion: Pulmono-atrial-shunting with a parallel lung assist can effecively reverse the deleterious effects of right ventricular failure. This concept may be an option to treat right ventricular failure surgically.

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EFFECT OF THE RADIAL ARTERY HARVEST FOR CORONARY ARTERY BYPASS GRAFTING ON POSTOPERATIVE BLOOD FLOW IN THE FOREARM AND HAND FUNCTION

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Objective: The potential reduction of forearm blood supply after radial artery harvest for CABG remains a major concern. The purpose of this study was to evaluate whether the removal of the radial artery affect blood flow in the forearm or hand function.
Methods: 32 patients (29 male, 3 female; mean age 53 ±8.6 years) were enrolled in this study. They had the radial artery from their non dominant forearm harvested to coronary artery surgery at least 6 months earlier. The mean follow up time amounts 14.3 ±9.5 months. Every patient underwent bilateral assessment of hand function. Light tough sensation and discrimination sensation, threshold of warm sensation, gross grip and pinch strength and fine motor function were evaluated. Oxygen saturation on forefinger was measured at baseline and after short hand exercises. Doppler ultrasound was performed in 21 patients. The internal diameter and peak systolic, end diastolic and mean flow velocity of the radial and ulnar artery at the wrist were recorded. All patients were asked to score the efficiency of the operated hand using 10 score scale.
Results: No altered sensation and fine motor function of the operated hand was observed. There was no significant difference in gross and finger pinch strength in the operated and non operated forearm. Pulse oximetry observations did not detect any differences between both hands. Doppler studies in extremities after radial artery harvest demonstrated an increase in ulnar artery diameter (0.25±0.04cm vs. 0.19±0.04cm; $P<<0.001$) and ulnar flow velocity (mean flow velocity: 33.1±17.2cm/s vs. 23.1±10.6cm/s; $P = 0.03$) compared against the non operated forearm. The calculated blood volume supplied for the hand was comparable at both sides (operated: 1.71±1.2 ml/s; non operated: 1.4±0.7ml/s, $P = 0.4$). The mean subjective patient evaluation of the operated hand amounted 8.7±1.3 scores.
Conclusion: Radial artery can be safety use as a conduit for coronary artery surgery, with no significant deterioration in blood flow in the forearm or hand function.

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OFF-PUMP VERSUS ON-PUMP CORONARY ARTERY BYPASS GRAFTING - THE EFFECT OF THE OPERATIVE TECHNIQUE ON THE POSTOPERATIVE GLOMERULAR FILTRATION RATE

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Objective: The purpose of this study was to compare the effect of OPCAB and conventional coronary artery surgery with use of the cardiopulmonary bypass (CPB) on the early postoperative renal function assessed on the basis of calculated creatinine clearance.
Methods: : Glomerular filtration rates (GFR) were estimated in 85 consecutive patients undergoing OPCAB and in 179 consecutive patients undergoing conventional CABG (CPB group) who composed the control group. Patients with chronic renal failure and operated in the cardiogenic shock were excluded from this study. Creatinine clearance calculated using the Cockroft-Gault formula was assessed preoperatively and up to 6th day postoperatively. The demographic and clinical data (age, sex, EUROSCORE value, mean LVEF, prevalence of hypertension, prior myocardial infarction, unstable angina) was comparable in both groups ($p>0.05$) except from the prevalence of diabetes mellitus which was greater in the CPB group ($n = 63$; 35.2% vs. $n = 17$; 20%, $P = 0.017$). Preoperatively calculated creatinine clearance was equal in both groups (CPB: 80.6±22.9 ml/min; OPCAB: 77.7±24.3 ml/min, $P = 0.34$). Perioperative and postoperative factors which may affect renal function were analyzed. There was no differences between both groups ($p>0.05$) in the number of patients who suffered cardiac arrhythmias, needed inotropic support, IABP application or sustained perioperative myocardial infarction. The decreases of mean arterial pressure below 60mmHg during the operation occurred more frequently in the CPB group ($n = 66$; 36.9% vs. $n = 3$; 3.5%, $P<0.001$).
Results: None of patients required postoperative dialysis or hemofiltration. A statistically significant decrease of GFR compared against preoperative values was not observed in both groups (CPB: 1.9±16.8 ml/min, $P = 0.49$; OPCAB:-3.4±17.2 ml/min, $P = 0.38$). The changes of GFR value did not differ between CPB and OPCAB group ($P = 0.5$).
Conclusion: Both OPCAB and conventional CABG with use of CPB seemed to be comparable safe for postoperative renal function.

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THE ROLE OF TRANSOESOPHAGEAL ELECTROPHYSIOLOGICAL STUDY IN DIAGNOSIS OF PAROXYSMAL RECIPROCAL AV-NODAL ARRHYTHMIA

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Objective: The aim of this study is to value the effectiveness of transoesophageal electrophysiological study (TEEPS) in diagnosis of paroxysmal reciprocal AV-nodal arrhythmia (PRAVNA).
Methods: We observed 61 patients (37 male and 24 female) with PRAVNA. The average age of the patients was 47.9±10.1 years old. Spontaneous paroxysms of tachycardia were registered by ECG in 42 (68.9%) patients. In other patients paroxysms were induced artificially and were documented. Signs of two conducting ways in AV-node were discovered in 37 (60.7%) patients. Sings of discontinuity of AV conducting were not observed in 24 (39.3%) patients. There was a "gap" phenomenon in 4 (6.6%) patients against a background of uninterrupted curve of AV conduct.
Results: During TEEPS PRAVNA was induced in all patients by at least one regimen of transoesophageal electrostimulating (TE). PRAVNA was induced in 45 (73.8%) patients with the help of increasing the frequency of electrostimulating (ES) of the left atrium (LA). But in 5 (8.2%) patients PRAVNA was induced only by aggressive regimens of ES of the LA. PRAVNA was induced in 35 (57.4%) patients by one stimulus while programming ES of the LA. In 26 (42.6%) patients PRAVNA was induced by two stimuli. Almost in every fifth patient (19.7%) PRAVNA was induced by all regimen of TE of the LA.
Conclusion: All cases of diagnosed PRAVNA were confirmed by intraoperative endocardial EPS. It can be the evidence of high diagnostic value of TEEPS. It should be performed in all patients with paroxysmal reciprocal AV-nodal arrhythmias.

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SOPRANO BIOPROSTHETIC VALVE IN AORTIC POSITION: INITIAL HEMODYNAMIC RESULTS

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Objective: The soprano pericardial valve is a newly designed stented bioprosthesis recently introduced in Europe. We present the initial hemodynamic data for this device and its performance in the clinical setting.

Methods: We analyzed the echocardiography data for the forty-four prostheses implanted in our institution between May 2003 and February 2005. The mean age for the patients was 73.8±0.5 years (range 65-81) and the average ejection fraction was 54.6±2.2%. The ?? average cross clamp time was 66.6±5.2 min and the bypass time 106±8.5 min. Two patients had aortic procedures associated with aortic root replacement with composite grafts. The follow up time was 310 patients-month.
Results: The mean size implanted was 19.8±2.9 mm. The peak gradient was 33.9±2.1 mmHg and a mean gradient of 19.8±1.5 mm. The BSA was 1.73±0.2 m^2. There were not any case of sever mismatch (EOA<0.65 cm^2/m^2). When the gradients were compared between the different sizes there was no significant difference in these figures. There were not any structural failures in the early follow up period of the valve.
Conclusion: This device shows in an initial series limited by the short-term follow-up an excellent hemodynamic result even in the small sizes. It might constitute a valuable resource in the small annulus for the elderly patients.

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AN EFFECTIVE METHOD FOR HARVESTING ITA GRAFT:ENDOTHORACIC PAPAVERINE APPLICATION

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Objective: This study was conducted to compare the effects of different papaverine?? applications on free blood flow and harvesting time of ITA graft.
Methods: Patients were randomly divided into 3 categories: group I received papaverine?? injections into the endothoracic tissue around ITA before dissection, Group II received?? papaverine injections into the periarterial tissues of the ITA pedicle, and group III had?? intraluminal papaverine applied retrogradely to the ITA.
Results: Mean flows were 21.1±13.2, and 20.9±9.1 ml/min in groups II and III respectively and 56.3±21.3 ml/min in group I (flow 1). Flow 1 in group I was statistically better than that of group II and group III ($P < 0.001$). Mean flows were 89.8±19.1, 97.6±35.4, and 95.9±19.9 ml/min after the application of papaverine (flow 2) in groups I, II, and III, respectively and no significant difference was detected between the three groups ($P > 0.5$). ITA harvesting times were shorter in group I than in groups II and III ($P < 0.001$).
Conclusion: The administration of papaverine into the endothoracic fascia space of ITA's bed prior to the dissection is an effective, reliable and quick method.

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INFLUENCE OF TEMPERATURE REGIMEN DURING CARDIOPULMONARY BYPASS ON GAS EXCHANGE IN COMBINED SURGERY ON CORONARY ARTERIES AND MITRAL VALVE

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Objective: The aim of the study was to evaluate gas exchange in different temperature regimens of cardiopulmonary bypass (CPB).
Methods: Samples of arterial and venous blood were studied in patients who underwent coronary artery bypass surgery (CABG) combined with mitral valve surgery. 79 patients were divided into 3 groups: I group ($n = 25$) - moderate hypothermia, rectal temperature was 28; II group ($n = 21$) - mild hypothermia, rectal temperature was 32-34; III group ($n = 20$) patients were operated without hypothermia, rectal temperature 35.5.?? The groups were similar in age, sex, CPB and aortic clamping duration. The blood samples were taken before CPB, after caval veins clamping, after cardioplegia,?? on maximal hypothermia, before rewarming, after restoring of heart activity at the end of CPB. Using hemoglobin, hematocrit, blood gases the following values were calculated: 1.Blood oxygen capacity (BOC, vol%) of arterial and venous blood: BOC = (1.34*Hb*Sat O2)/100+0.24*pO2*(100-Ht)/760 2.Arteriovenous O2 difference(vol%) AVD = BOCart -BOCven 3.Whole body oxygen consumption(ml/min*m^2) VO2 = Q*(BOCart-BOCven), Q is the perfusion rate.
Results: Patterns of gas transport were revealed. As shown on figure1 attenuation in VO2 occurred in the first two groups since cooling stage. Both BOC art and BOC ven drop contribute to VO2 changes. In blood samples which were taken after cardioplegia profound decrease in VO2 was seen in hypothermic CPB(groups I and II) but in the III group it was near baseline. The lowest VO2 was occurred before rewarming but even here VO2 was the highest in group III. At the end of CPB there was further decline in VO2 which can be explained by peripheral spasm with microcirculation impairment. Meanwhile in last two groups VO2 was near baseline and this can display effective peripheral blood flow.
Conclusion: Normothermic perfusion provides adequate parameters of gas transport function, even does not cause diminution in VO2.

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REDO HEART VALVE OPERATIONS

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Objective: The aim of this study is to reveal predictors that influence negatively on patient status during operation and to estimate their mortality rate (both operative and early postoperative). The other aim is to compare the operative mortality with estimated by the logistic EuroScore mortality.
Methods: During 1999–2004 period 100 patients were undergone redo heart valve operations (1st group). 37% were male and 63 were female. The structure of the causes of redo operations were the fol-lowing: mitral valve restenosis after mitral comissurotomy - 53%; paravalvular fistula - 4%; mitral valve insufficiency after previous repair procedure - 10%; prosthetic valve endocarditis - 10%; previously mitral valve repair endocarditis - 14%; mitral prosthetic valve thrombosis - 9%. The control group (2nd group) consisted of patients ($n = 50$) who were firstly operated on heart valves. The expel criterion was concomitant coronary artery lesion. Estimated operative mortality rate was counted by EuroScore.
Results: The average age of the 1st patient group was 49.7±12.31 years old and 40.3±12.8 years old ($P<0.05$) in the 2nd group. Average time of defect duration time was 31.3±9.3 and 22.4±12.7 ($P<0.05$) years old in both groups accordingly. High systolic pulmonary pressure (over 50 mmHg) was observed in 52% and 37%. ($P<0.01$) accordingly. Severe left ventricular dysfunction (Ejection fraction by Simpson < 40%) existed up to 43% and 36% ($P<0.05$) cases before op-eration in both groups accordingly. Average CPB time was 126.3±43.2 and 66.4±21.6 min ($P<0.01$) accordingly. Average operative blood loss was 812.3±195.3 and 385.1±115.5 ml ($P<0.05$) accordingly. One valve procedure was presented in 36% and 42% ($P<0.05$); two valves procedure - 50% and 44% ($P<0.01$); three valves - 13% and 14% accordingly. Calculated mortality rate was 24% and 2.9% by EuroScore accordingly. Actual mortality - 11% and 2% ($P<0.05$) accordingly.
Conclusion: Patients for redo valve operations are more complicated. As a result the mortality rate in this group is much higher then in patients operated firstly. In redo surgery it is particularly necessary to estimate preoperative patient status and predictive risk factors for success redo operation.

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REDO HEART VALVE SURGERY AND POSTOPERATIVE ARRHYTHMIAS

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Objective: The aim of this study is to reveal the character and structure of postoperative arrhythmias in patients who were undergone redo valve operation.
Methods: During 1999 - 2005 period 108 patients were undergone redo heart valve operations. 36.1% were male and 63.9% - female. Average age was 49.6±11.3 years old. Due to kind of arrhythmia before operation all patients were divided into three groups: 1st - chronic atrial fibrillation (39.8%); 2nd - paroxysmal atrial fibrillation (26.9%); 3rd - sinus rhythm (33.3%). All operations have been performed with cardiopulmonary bypass (CPB) and warm pharmacological blood-based cardioplegia (65%). The expel criterion was concomitant coronary artery lesion. Patient status was measured with standard methods.
Results: After redo procedure in 1st group chronic atrial fibrillation remained in 60% of the patients. While chronic atrial fibrillation, different kinds of ventricular arrhythmias were observed in 19% of the patients. Sinus rhythm was restored in 10.7% of the patients. 6.5% of the patients required an implantation of permanent pacemaker because of bradyform of chronic atrial fibrillation had been developed. In 2nd group sinus rhythm

was restored in 28.6% of the patients. Paroxysmal atrial fibrillation turned into chronic form in 6.6% of the patients. 6.6% of the patients required an implantation of permanent pacemaker due to total AV blockade. In 3rd group sinus rhythm remained in 28% of the patients. Paroxysmal atrial fibrillation was medically arrested in 23%. Chronic atrial fibrillation developed in 41% of the patients.
Conclusion: The rate of postoperative arrhythmias is very high after redo heart valve surgery. Their prophylaxis before operation, reveal and early cure in postoperative period is an important aim.

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ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING

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Objective: In spite on all modern achievements in cardiac surgery post-operative arrhythmias in patients with ischemic heart disease is still very important problem. Existence of such arrhythmias leads to increasing of in hospital stay and treatment cost. Besides, it's not necessary to say about risks and that patients feel of our manipulations when we cure them.
Methods: We observed 162 patients with ischemic heart disease that were operated on coronary arteries while the period 2002-2004 years. Average age was 59.4±8.6 years old. The duration of ischemic heart disease existing was 12±6.5 years old. Off pump cardiac revascularization was performed in 60.4% of the patients; otherwise CABG with cardiopulmonary bypass - 39.6% of the patients. All patients were divided into two groups, with atrial fibrillation (1st group) and without it (2nd group).
Results: Average age in the 1st group was 66.3±4.3 years old. 41% of the patients had myocardial cardiosclerosis after infarction. 19% of the patients had unstable angina or subacute myocardial infarction before operation. Average amount of anastomosis 3.1±0.9 per patient. Off pump cardiac revascularization was performed in 26% of the patients; otherwise CABG with cardiopulmonary bypass - 74% of the patients. In the postoperative period 89% of the patients were administered Dilthiazem and 11% of the patients required Dilthiazem and Metoprolol combination. Average age in the 2nd group was 59.4±2.1 years old (P<0.05). 42% of the patients had myocardial cardiosclerosis after infarction. 12% of the patients had unstable angina or subacute myocardial infarction before operation (P<0.05). Average amount of anastomosis 2.95±0.11 per patient (p>0.05). Off pump cardiac revascularization was performed in 69% of the patients; otherwise CABG with cardiopulmonary bypass - 31% of the patients. In the postoperative period 51.7% of the patients were administered Dilthiazem (P<0.05). 40.7% of the patients required Dilthiazem and Metoprolol combination (P<0.01). Only Metoprolol was used in 7% of the patients. Cordaron was administered to 0.6% of the patients.
Conclusion: The predictors for atrial fibrillation appear in postoperative period are patient age, presence of unstable angina or subacute myocardial infarction, the way of revascularization (off pump or CPB), time of CPB, amount of anastomosis and the basic therapy in postoperative period.

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HYDRODYNAMIC EVALUATION OF KANGAROO AORTIC VALVE MATRICES FOR TISSUE VALVE ENGINEERING

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Objective: Kangaroo aortic valves (KV) differ morphologically from porcine aortic valves (PV), but it is unknown whether this is also reflected in a different hydrodynamic performance. The aim of this study was therefore to compare the in-vitro hydrodynamic performance of KV and PV scaffolds for use in tissue valve engineering.
Methods: We evaluated the hemodynamic performance of kangaroo aortic valve matrices (KM), (19mm, 21mm and 23mm) as potential scaffolds in tissue valve engineering using a pulsatile left heart model at low and high cardiac outputs (CO) and heart rates (HR) of 60 and 90 beats per minute. Data were measured in 2 samples of each type, pooled in two CO levels (2.1± 0.7 l/min, and 4.2± 0.6 l/min; mean±SEM) and analysed using analysis of covariance (Anova) with CO level, HR and valve type as fixed factors and compared to similar porcine matrices (PM).
Results: Transvalvular gradients (?P) was a function of HR (P< 0.001) and CO (P<0.001) but not of valve type (P = 0.39). ?P was consistently lower in KM but not significantly different from PM. The effective orifice area and performance index of kangaroo matrices was statistically larger for all sizes at both cardiac outputs and heart rates.
Conclusion: (1) Both kangaroo and porcine matrices showed an increase in pressure drop and effective orifice area with increasing cardiac output, (2) Although for all sizes tested, there was no statistically significant difference in the mean gradient at either low or high cardiac outputs. and at 60 or 90 beats per minute, kangaroo matrices showed consistently lower transvalvular gradients, (3) The effective orifice area and performance index of kangaroo matrices was statistically larger for all three sizes of valves at both low and high cardiac out put and at both 60 and 90 beats per minute and (4) These results are encouraging for further investigations into the use of kangaroo aortic valve matrices in tissue valve engineering.

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UP TO 15 YEARS' EXPERIENCE WITH SURGICAL TREATMENT OF POSTINFARCTION LEFT VENTRICULAR PSEUDOANEURYSM

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Objective: We present our experience with acquired pseudoaneurysms of the left ventricle over a 15year period.
Methods: February1985 and September 2004, 14 patients operated upon for a left ventricular pseudoaneurysm in our clinic were reviewed. All pseudoaneurysms were due to a complication of myocardial infarction (12 chronic and 2 acute). The mean interval between the myocardial infarction and the diagnosis was 7 months (range 1 to 14 months). The pseudoaneurysm was located in the inferior or posterolateral wall in 11 of 14 patients (78.5%). In all patients, the pseudoaneurysm was resected and the ventricular wall defect closed with direct suture (6 cases) or a patch (8 cases). Most patients had three-vessel coronary artery disease. Coronary artery bypass graft was performed in all patients.
Results: Five patients died (postoperative mortality 35.7%) after repair of an acute postinfarction (2 patients) or a chronic (3 patients) pseudoaneurysm. Two patients died during follow-up (median 42 months) due to cancer in 1 patient and sudden death in the other patient.
Conclusion: Although repair of left ventricular pseudoaneurysm is still a surgical challenge, it can be perform with acceptable results in most patients. Surgical repair is warrant particularly in acute and chronic ones with large and/or expanding ones because of propensity for fatal rupture.

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THE EFFECT OF THE EXTRACORPOREAL PERFUSION CIRCUIT ON PLATELETS & FIBRINOLYSIS AND THE INCREASE IN HEMOLYSIS

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Objective: We evaluated the performance characteristics of the extracorporeal perfusion circuit (EPC) on platelets, fibrinolysis and the increase in hemolysis.
Methods: One hundred and ninety patients undergoing elective cardiac surgery with cardiopulmonary bypass were randomised into five groups according to the EPC type. Group 1 EPC with Affinity oxygenator. Group 2 EPC with Hilite oxygenator. Group 3 EPC with Quadrox oxygenator. Group 4 EPC with Spiral Gold oxygenator. Group 5 EPC with D-703 oxygenator. We performed platelet counts, ADP aggregation, XIIa-kallikrein dependent fibrinolysis activity, D-dimer concentration and hemolysis before and after CPB.
Results: Platelet counts and functional activity were better (P<0.05) with the Quadrox oxygenator independently of perfusion time and temperature protocol. No fibrinolysis activation was observed. This result was due to the use of a coated EPC, the small membrane surface area and its gas transfer characteristics. Heat exchange was more efficient in the Quadrox and Hilite oxygenators with polyurethane heat exchange fibers. These two oxygenators were the most biocompatible and atrauamtic. There was a low frequency of hemolysis (24%) and a low degree of hemolysis particularly noticeable with the Hilite oxygenator. Other EPC's had a similar effect on the investigated parameters.
Conclusion: The performance characteristics of the EPC are an important factor on platelet numbers and quality, fibrinolysis and the frequency and degree of hemolysis during cardiopulmonary bypass.

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NORMOTHERMIC PERFUSION PROVIDES ADEQUATE PARAMETERS OF GAS TRANSPORT FUNCTION, EVEN DOES NOT CAUSE DIMINUTION IN VO2

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Objective: The aim of the study was to compare hematological values during cardiopulmonary bypass(CPB) with different temperature regimens.
Methods: Samples of arterial and venous blood were studied in patients who underwent coronary artery bypass surgery(CABG). 61 patients were divided into 3 groups: I group (*n* = 20) - moderate hypothermia, rectal temperature was 28; II group (*n* = 21) mild hypothermia, rectal temperature was 32-34, III group (*n* = 20) patients were operated without hypothermia, rectal temperature - 35.5.?? The groups were similar in age, sex, CPB and aortic clamping duration.
Results: During CPB, an initial decline in leucocyte count developed in all three groups which is due to hemodilution. In rewarming, however, significant elevation of leucocyte count was observed in I group which did not return to baseline values by the end of CPB. These changes may be explained by systemic inflammatory reaction which was strengthened during rewarming. Decrease in red blood cells (RBC) count in all three groups was shown, whereas in III group quantity was significantly greater than in the first two ones. Histogram analysis revealed a decrease of the mean corpuscular volume (MCV) during cooling with further MCV rise in rewarming. No statistically significant differences in MCV were seen between groups II and III which was attributed to low temperatures influence on the RBC membrane. Men concentration of hemoglobin in erythocyte (MCHC) reduced during cooling in I and II groups. Decrease in total platelets count (PLT) was noted in all groups and was related to their destruction in extracorporeal contour and hemodilution. Less profound decrease in PLT count was seen in the latter two groups (blood specimens collected after cardioplegia) which indirectly suggests about negative influence of hypothermia on platelet cell membrane stability. Analysis of mean platelet volume(MPV) showed that on rewarming MPV increased in group I, while volume parameters in groups II and III were near baseline values and did not have statistically significant differences with preCPB levels.
Conclusion: Hypothermia influences qualitative and quantitative parameters of all blood stems. 1.?Cooling and rewarming enhance systemic inflammatory response increasing total leucocyte count, preferrably granulocytes. 2.Cooling lessened MCV with further decrease hemoglobin concentration. Against, rewarming leads to rise of RBC volume, nevetherless hemoglobin did not become greater. 3.Megacaryocyte stem reaction to cooling and rewarming included MPV growth and total platelet count drop.

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ATTENDANT BRAIN PATHOLOGY AT CHILDREN WITH CONGENITAL HEART DISEASES BASED ON DATA OF CT IMAGING

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Objective: The purpose of our research was revealing a brain pathology of children in the age of till 1 year and from a year till 5 years with various CHD.
Methods: 165 patients with various congenital heart diseases in the age of from 1 day till 5 years are surveyed. The computer tomography (CT) was carried out on spiral computer tomograph HiSpeed CT and electron beam tomograph C-150 XP under the program of step-by-step axial scanning with cuts thickness about 5-6 mm.
Results: As a result of inspection the various changes of a brain, which quite often combined among themselves, have been revealed. The hydrocephaly is noted at 51 patients, malformation of a brain and/or a skull - at 28. A plethora of a brain is diagnosed for 21 child, a hypostasis of a brain - at 23. CT-attributes of an encephalopathy (a combination of a hydrocephaly, periventricular hypostasis and hearth changes of substance of a brain) are noted at 22 patients. Sharp infringement of brain blood circulation is revealed at 17 patients, intracranial haemorrhages - at 13. In 3 cases at children it were available atrophyed changes of a brain, for three patients it was diagnosed the enlargement of a brain ventricles. At two children cyst-cicatricial changes of a brain have been caused by the transferred insults.
Conclusion: The computer tomography is a method of a choice for revealing a pathology of a brain at children with congenital heart diseases as in minimally short terms allows the attending doctor to estimate possible risk of cardio surgical interventions. Diagnostics of defeats of the central nervous system by means of a tomography is necessary to carry out for all children requiring operations on open heart in conditions of artificial blood circulation in occasion of CHD, for correction of preoperative preparation of patients, and also for planning anaesthesiological manual, the report of operation and methods of "protection of a brain" with the purpose of reduction of number of postoperative neurologic complications in view of a previous accompanying pathology of the central nervous system. The computer tomography of a brain is shown to all patients with the developed neurologic frustration in the postoperative period for a choice of treatment tactics for these patients.

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PROGNOSIS OF THE RESULTS OF THE AORTIC VALVE REPLACEMENT WITH A MECHANICAL PROSTHESIS

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Objective: The choice of the optimal size of the mechanical prosthesis in the aortic valve surgery.
Methods: An estimation of function of the disk prosthesis in the isolated aortic valve replacement carried out on the basis of the intraoperative transesophageal echocardiography and the use of the transthoracic echocardiography in the early postoperative period. Transesophageal and transthoracic echocardiography carried out by a standard technique with the use of the ultrasonic systems "Sonos-5500", "Sequoia-256". Parameters of the central hemodynamics and systolic function of a left ventricle, doppler echocardiographic parameters of the mechanical prostheses in the aortic position were estimated.?? 120 patients who underwent isolated aortic valve replacement with monoleaflet (44) and bileaflet (76) mechanical prostheses were analyzed. There were 83 men and 37 women, with a mean age of 41.5 + 14.7 years (range: 18 to 68 years). The mean body surface area was 1.73 + 0.16 m^2 (range: 1.48 up to 2.3 m^2). Diameter of the aortic annulus varied from 16 to 32 mm. The divergence of the sizes of an aortic annulus measured at echocardiography and by the calibrator intraoperatively did not exceed 1 mm. 36 patients with small aortic annulus underwent aortic annular enlargement using a xenopericardium patch.
Results: The effective orifice area of the prosthesis, received by the echocardiography in all observations was less settlement for each standard size of the prosthesis. At comparison of The different types of the prostheses have revealed that the appreciable deviation doppler echocardiographic parameters from norm was observed because of incorrect prosthesis orientation and unextracted calcification of the interventricular septum. With other things being equal, bileaflet prostheses give the best parameters of the peak and mean pressure gradient in comparison with the monoleaflet once. We have revealed dependence of the trans-valvular pressure gradient from the effective orifice area and from the body surface area of the patient.
Conclusion: The body surface area of the patient is a starting point for calculation of the optimum size of the mechanical prosthesis in aortic valve replacement. The choice of the appropriate prosthesis size, depends from the index of the effective orifice area of a prosthesis. The index of the effective orifice area of the prosthesis should be more, than 0.9 cm^2/m^2. In all cases when the settlement size of a prosthesis exceeds the size of an aortic annulus, it is necessary to resort to an aortic annulus enlargement.

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EVALUATION OF THE CARDIAC MORPHOMETRY IN INFANTS WITH COMPLEX CONGENITAL HEART DISEASES BY COMPUTED TOMOGRAPHY

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Objective: To define the possibilities of computed tomography (CT) in the evaluation of cardiac morphometry in infants with complex congenital heart disease (CHD).
Methods: 40 patients (17 boys, 23 girls; age range 15 days-7 months) with CHD were examined with contrast-enhanced electron beam tomography (EBT). We used 1.5-2.5 ml/kg iodinated contrast material (350mgI/ml). The start delay was 25-30s. All examinations were performed on the EBCT-scanner "Evolution 150, GE-Imatron" in the step volume scan mode with a 1.5-3mm slice thickness and diastolic ECG-gated. Linear or curved planar reformatting, MIP and SSD-reconstruction were used depending on target

structure and purpose. Images were analyzed off-line on an "Advantage Windows" workstation.
Results: In all patients we could define situs, diameter of vessels and camers; volume of right and left ventricles. In addition, we calculated volume and myocardial mass of the heart. Volume of heart varied from 30 to 110 ml and myocardial mass from 31 to 111 g. Volume and myocardial mass heart depended on hemodynamic findings. Volume and myocardial mass heart were different in infants of the same age and with similar surface of the body. We carried out a study on the hearts of pigs, so that to confirm the real values of the measures of computed tomography. Calculated and real heart volume and myocardial mass of the pig were identical.
Conclusion: Calculation of the heart volume and myocardial mass should be included in the standard protocol of computed tomography for the abnormal cardiac anatomy in infants due to the fact that CT is an accurate method for preoperative evaluation of the heart volume and mass.

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DIMENTSION PULMONARY VEINS AT PATIENTS WITH ATRIAL FIBRILLATION AFTER RADIOFREQUENCY CATHETER ABLATION WITH USING SPIRAL CT
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Objective: ?? estimate possibility SCT scanner in determination anatomy PV patient with atrial fibrillation (AF) and diagnostic different changes in PVs after radiofrequency catheter ablation (RFA) left atrium (LA) and left ventricle (LV).
Methods: 196 patient with different types AF were examined with SCT scanner. The outcome of RFA was examined in 38 patients at the different time after operations (6 days, 3 months, 6 months). All patients underwent scaning using SCT technique, with multiplanar reconstruction (MPR) and threedimensional reconstruction (3D), selective angiography and electrophysiologic study with RFA of arrhythmia foci.
Results: 823 PVs were estimated. The sizes of the PVs were examined in axial planes and MPR. These results were compared with selective angiography dates. The most exact dimension of PVs was typically seen in MPR with axial viewes underestimating the vein size. Anatomy characteristics of the orifice PVs were assessed with 3D. 11% patients had Common Trunk of PV in the left, 10% patients had Vestibule of PV in the left and 2% patients had Vestibule of PV in the right. Typical left pulmonary veins were observed at 79% patients and right -at 78% patients. Three separate ostia PVs had 20% patients. According dates of the electrophysiologic study with spiral CT the arrhythmia focus was localized to the most widest vein ($P<0.05$) or to the common Trunk of PV(94%). The changes from 18 to 48% occurring in the PVs with RFA with separate LP were showed in 9 veins (45%). 91 PVs were estimated in patients after ablation with separate LP. In this case 14% veins had changes in PV from 18 to 48%. The maximum dimension of PVs was observed in the remote period of time after ablation and depended on the tipe of interventional procedure.
Conclusion: SCT is a highly effective method of estimating anatomy and dimension PVs. Exact determination anatomy and dimension of PVs is a significant condition for planning intervascular sergery and estimating changes after ablation.

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USE OF INTRACORONARY THEROX AQUEOUS OXYGEN SYSTEM AS HEMODINAMIC SUPPORT DURING BEATING HEART CORONARY REVASCULARIZATION: PRELIMINARY RESULTS
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Objective: During Beating Heart Revascularization areas of the myocardium may be exposed to ischemia. Protection of the myocardium against ischemia is mandatory. Aim of this study is twofold: A) to evaluate the capability of the Aqueous Oxygen (AO) to protect against ischemia during Beating Heart Revascularization and B) its technical feasibility. An animal model was developed.
Methods: In 5 muttons (55-72Kg) a single bypass to the left anterior coronary artery (LAD) was performed. Beating heart techniques without heart and lung machine where used and intracoronary shunts were avoided. The LAD was previously occluded in hits proximal part. To prevent myocardial ischemia during the time spent to perform the anastomosis, a small catethere was introduced into the distal part of the arteriotomy and Aqueous Oxygen (TherOx, Inc.; Irvine, CA) was injected into it (1.3 cc/sec.). Systemic blood pressure, oxygen blood tension and the electrocardiogram were continuously monitored. To evaluate the myocardial function an epicardial echocardiogram was performed.
Results: One animal (last in the study) was excluded because of sudden Ventricular Fibrillation (VF) before the use of the TherOx and another one (first in the study) developed ischemia and VF during the procedure because of technical problems not related to the use of the TherOx. Tree animals had The Left Internal Mammary Artery (LIMA) successfully anatomized to the LAD without myocardial transitory ischemia or wall motion modification at the echocardiogram. The mean systolic blood pressure was also monitored and there were no modifications before, during and after the use of the TherOx.
Conclusion: This preliminary study shows that, in an experimental animal model, the use of the TherOx System during beating heart coronary revascularization is safety and helps to protect the myocardium against ischemia.

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SERUM LEPTIN LEVELS PREDICT CAROTID INTIMA/MEDIA THICKNESS IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS SURGERY
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Objective: Leptin, the product of obesity gene, is a cytokine like protein mainly synthesized by white adipocytes. The main functions of leptin are to regulate appetite, energy expenditure and whole-body energy balance. In addition, leptin have been implicated in the pathogenesis of atherosclerosis and a recent study reported that plasma leptin levels were predictor of atherosclerotic cardiovascular disease. However, the relation between leptin and measures of atherosclerosis has not been fully determined yet. To determine this relation, we measured carotid artery intima-media thickness (IMT), ankle brachial index (ABI) and serum concentrations of leptin in the patients with CAD who underwent coronary artery bypass grafting (CABG).
Methods: Patients: eighty-eight consecutive patients (72 male, mean age 60.93±10.7) with documented CAD who underwent CABG were included into the study. Laboratory analysis: the serum concentrations of leptin were measured in the fasting venous blood samples by RIA (Human Leptin IRMA Kit(r), Diagnostic Systems Laboratories, Texas, USA). Carotid artery ultrasound: carotid artery IMT of far wall was measured at the distal common carotid artery and the carotid bulb on both sides with a high-resolution ultrasound unit (Apio80(r), Toshiba, Tokyo, Japan) equipped with an 12-to -6-mHz broad-band linear transducer. Ankle brachial index: a sphygmomanometer cuff was placed around the ankle and inflated to a suprasystolic level, then slowly deflated. The onset of blood flow detected by the doppler probe on the posterior tibial artery was accepted as the doppler ankle pressure. The ankle brachial index was calculated as a ratio of ankle pressure to the brachial systolic pressure.
Results: The mean serum leptin concentration was 10.57±11.16 µg/ml. The mean carotid artery IMT were 0.97±0.13 mm and 1.01±0.14 mm at the distal common carotid artery and the carotid bulb level, respectively. The mean ABI were 1.11±0.16 and 1.10±0.15 on the right and the left side, respectively. Serum leptin concentrations significantly and positively correlated with carotid bulb IMT ($r = 0.249$, $P<0.05$). There were no significant correlation between serum leptin concentrations and distal common carotid artery IMT, ABI on the either sides.
Conclusion: In this study, we provide evidence that serum leptin concentrations predict early atherosclerosis in carotid arteries in patients with CAD. Leptin is one of the clinically important molecules associated with atherosclerosis. The measurement of serum leptin level would be of predictive value to identify patients at high risk to develop concomitant atherosclerotic disease in carotid arteries.

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MAGNETIC RESONANCE IMAGING AND ELECTRON BEAM TOMOGRAPHY IN DIAGNOSIS AND FOLLOW-UP OF CHILDREN AND INFANTS WITH CONGENITAL HEART AND VESSEL DISEASES
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Objective: To compare images of the heart obtained with electron beam tomography (EBT) and MR scanning in children and infants with complex congenital heart diseases (CHD).
Methods: 106 patients (55 boys, 51 girls; age range 0–15 years) with CHD were investigated by MRI. MR images were acquired on a <<Signa>> 1.0 T

GE system. To reduce flow and motion artifacts ECG triggering and respiratory compensating and sedation were used in all patients. All infants were placed in head coils. We used multislice spin-echo and gradient-echo technique. Coronal, transverse, sagittal and oblique images were obtained for all patients. The oblique planes were selected in areas of interesting. The selected slice thickness was 3-4 mm. 240 infants (128 boys,112 girls) with CHD were examined with contrast-enhanced EBT. We used 1.5-2.5 ml/kg iodinated contrast material (350mgI/ml). The start delay was 25-30s. All examinations were performed on the EBCT-scanner "Evolution 150, GE-Imatron" in the step volume scan mode with a 1.5-3mm slice thickness and diastolic ECG-gated. Linear or curved planar reformatting, MIP and SSD-reconstruction were used depending on target structure and purpose. Images were analyzed off-line on an "Advantage Windows" workstation. For the analysis of abnormal anatomy we used a segmental approach.
Results: In all patients we defined situs, atrioventricular connections, type of ventricular loop,orientation of great arteries to each other and ventricular arterial connections by both methods. EBT was best for the evaluation of ductus arteriosus and anomalous of lung and vessels. Also EBT was more useful in an unstable patients. MRI was much more informative to detect small septum defects and diagnostics of single ventricle. It was also preferable for determination of functional abnormalities. All findings were confirmed by angiocardiography findings and surgical findings. MRI and EBT can be used for postoperative evaluation.
Conclusion: EBT and MRI are accurate techniques for preoperative diagnosis and postoperative evaluation in children and infants with CHD. EBT and MRI can be equil to catheter angiocardiography for detecting the details of CHD. The choice of methods is made in each case,based on history, cardiac status of the patients and clinical picture.

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MINI INVASIVE APPROACHES FOR INTRAMYOCARDIAL CELL DELIVERY

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Objective: Cell therapy for cardiovascular pathology has entered clinical trials around the world. One of the main problems is cell delivery into ischemic region of myocardium. The most reliable and effective way of delivering is direct intramyocardial injection, which is possible only in time of CABG. The aim of our study is development of mini invasive approaches for intramyocardial injection.
Methods: On 50 human cadavers (25 women and 25 men: 23 normosthenic, 15 hypersthenic and 12 asthenic) we compared: transdiaphragmatic pericardiotomy, transthoracic pericardiotomy in 4th and 5th intercostals spaces left and right side. We investigated accessibility to different parts of myocardium by means of criteria: position of operational axis, wound depth, angle of operational movements, inclination of operational axis, access area and necessity of video assistance. We paid attention to age, weight, sex, previous operations on thoracic and abdominal cavity. The injection was performed with 22G needle (BD) and syringe with water soluble iodine solution as a dye to mark the place of injection, evisceration had been performed in 30-45 min.
Results: The transthoracic mini invasive approaches allowed access to surfaces of right ventricle, anterior parts right and left atrium, direct injection was performed in reliable manner. While transdiaphragmatic pericardiotomy allowed intramyocardial injection to all regions of left ventricle and right ventricle. Criteria statistically significant were: wound depth 11±2.0 cm for thoracic approach and 16±2.2 cm (P<0.005) for transdiaphragmatic approach, angle of operational movements for thoracic approach 42±3.4º and 34±2.8? (P<0.005) for transdiaphragmatic approach, inclination of operational axis 75±5.0º for thoracic approach and 30±5.0?(P<0.005) for transdiaphragmatic approach, access area was 22±2.4 cm^2 in thoracic access from one point 72±3.6 cm^2 (P<0.005) for transdiaphragmatic access. Video assistance was obligatory in asthenic patients for transdiaphragmatic approach. At the autopsy the position of dye in myocardium: injections to all parts of ventricles were possible only in transdiaphragmatic approach. In patients with previous cardiac or thoracic operations (8 from 50) because of adhesive process it was impossible to perform mini invasive transthoracic pericardiotomy, while transdiaphragmatic approach proved it's possibility to get access to diaphragmatic part, anterior and posterior third of ventricle surfaces and possibility of injection. There were no severe adhesions between pericardium and heart.
Conclusion: Ventricles are the most frequently involved in ischemia. Transdiaphragmatic approach allowed full access to ventricles and direct intramyocardial injection. In asthenic patients video assistance is obligatory. No barriers in case of previous thoracic and abdominal operations.

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LEFT-SIDED GRAFT FOR INTERRUPTED AORTIC ARCH AND ACQUIRED MITRAL REGURGITATION

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Objective: Interrupted aortic arch (IAA) is a rare congenital malformation. ?? Delayed diagnosis in adulthood is rare and in these cases IAA is usually isolated. We describe a rare case of type A interrupted aortic arch in a male adult patient associated with symptomatic acquired mitral regurgitation. We successfully treated this unusual and to date undocumented association by one-stage surgical procedure with left side aorto-aortic bypass and edge to edge mitral valve repair. This is the first reported intra-pericardial left sided aorto-aortic bypass.
Methods: A 59 year old man was referred for treatment of severe mitral regurgitation Transesophageal echocardiography showed A2 prolapse and a flail P2 due to chordal rupture. Femoral artery access for coronary angiography failed for a blockage at the aortic isthmus level. Right radial approach demonstrated aortic occlusion distal to the left subclavian artery and an 80 mmHg gradient. CT scan and MR angiography confirmed the diagnosis and documented an extensive collateral blood supply to the descending aorta. Through median sternotomy, cardiopulmonary bypass was instituted by direct caval cannulation and double arterial cannulation of ascending aorta and left common femoral artery. Valvuloplasty included central edge-to-edge repair (Alfieri et al) and a 30 mm flexible ring (Cosgrove-Edwards, Edwards Lifescience). After atrial closure, the aortic cross-clamp was removed. The aortic graft was adequately tailored and positioned around the left side of the heart with a generous loop.
Results: One year later neurological function was normal and blood pressure was 115/70 mmHg without medications. Echocardiography showed mitral valve competence and angiography demonstrated wide patency of the aortic graft without gradient.
Conclusion: The present is the 7 th reported adult case of type-A IAA surgically treated, and the first associated to mitral valve regurgitation. Coexisting mitral pathology was consistent with myxomatous disease. Adult isolated IAA is usually repaired through a left thoracotomy, while one-stage correction, through median sternotomy, is indicated in most infants with IAA and ventricular septal defect. The combination of IAA and mitral valve disease prompted the use of median sternotomy and bypass graft for one-stage repair. Cross-clamp time was limited to the intracardiac portion and the graft was anasthomosed on cardiopulmonary bypass and beating heart.?? Extra-anatomic graft positioning was different from other published cases since it was placed on the left side of the heart. This choice avoided leaving the graft behind the sternum or in close proximity to the inferior cava vein or the esophagus reducing the risk of long-term complications.

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INTRA-AORTIC BALLOON PUMPING IN AORTIC VALVE REPLACEMENT AND COMBINED CARDIAC PROCEDURES: OUTCOME AND INDICATIONS

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Objective: Intraaortic balloon pump (IABP) has become the most commonly used mechanical assist device in cardiac surgery. Due to augmentation of the coronary flow IABP is in the majority of cases used in coronary artery bypass grafting. Only little is known about the outcome of IABP in patients undergoing aortic valve replacement or combined cardiac procedures. The purpose of this study is to analyze this subgroup of patients and to discuss future indications of IABP use in these patients.
Methods: From 1995 to 2005 118 patients at our institution received IABP after undergoing aortic valve replacement or combined cardiac procedures. Age of patients ranged from 30 to 84 years with a mean of 68 years. We investigated 30 days mortality with special regard to time when IABP was inserted (pre-, intra- or postoperatively) and priority of surgery. Intraoperative insertion of IABP was defined as insertion prior to first weaning of cardiopulmonary bypass.

Results: Out of 118 investigated patients 48 received isolated aortic valve replacement (group A) and 70 combined cardiac procedures (group B). Over all mortality was 58% in group A and 52% in group B. Mortality was significantly lower in patients who received IABP intraoperatively, 2 of 15 patients (13%) in group A and 2 of 19 patients (11%) in group B vs. patients who received IABP postoperatively, 25 of 33 patients (75%) in group A and 28 of 46 patients (60%) in group B. There were no significant differences between priority of surgery with clear tendency to poor prognosis of emergent surgery cases.
Conclusion: Outcome of IABP use in cardiac operations other than isolated coronary artery bypass grafting is poor. We conclude that time of insertion is crucial for outcome and indication of insertion should be considered prior to first weaning from cardiopulmonary bypass.

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EARLY VALVE HEMODYNAMICS AND CHANGES IN LEFT VENTRICULAR MASS INDICES FOLLOWING IMPLANTATION OF THE SORIN SOLO STENTLESS AORTIC BIOPROSTHESIS

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Objective: Stentless biological valves have had significant impact on the hemodynamics and left ventricular remodeling after aortic valve replacement (AVR). Our aim was to determine hemodynamic and clinical results of the stentless pericardial valve implanted for aortic stenosis and to evaluate the regression of left ventricular hypertrophy (LVH) postoperatively.
Methods: Between November 2004 and June 2005, a total of 16 patients with aortic stenosis (mean age 72.7±5.9 years, 10 man and 6 women) underwent AVR with a Sorin Freedom Solo stentless pericardial valve (Sorin Biomedica, Saluggia, Italy). Single suture line technique was used for implantation. All were in NYHA class III to IV. Five patients required coronary bypass grafts. Two were reoperations. They were prospectively investigated by Doppler echocardiography at 6 months after operation. Current follow-up data are available for all patients.
Results: All patients survived the early postoperative period. Ischemic times ranged from 52 to 82 min for isolated AVR and up to 98 min for aortic plus CABG. NYHA functional class improved in all patients. Mean postoperative intensive care stay was 1.3±0.7 and hospital stay was 9.3±4.9 days. Mean ventilation time was 18±4 h. At echocardiographical examination within 6 months of the AVR, the mean aortic valve gradient was 11±4, 9.2±3, 7.3±3, and 6.2±3 mmHg for 21, 23, 25, 27 mm valve sizes, respectively. Left ventricular mass index declined accordingly over 6 months (166±45.7 g/m^2 to 115.6±29.4 g/m^2). Left ventricular end diastolic diameter decreased from 5.3±0.7 cm to 4.7±0.5 cm. In the follow up, aortic insufficiency developed in one patient. During six months follow up no endocarditis or thromboembolic events were registered.
Conclusion: Early results of Sorin Freedom Solo pericardial valve in the aortic position are promising. Significiant regression of LVH was achieved even in the small aortic roots at 6 months follow-up.

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CARDIOVASCULAR IMAGING OF ASD II WITH AGENESIS OF THE RIGHT LUNG AND UNCONVENTIONAL SURGICAL TREATMENT OF ASD II IN A 6-YEARS-OLD BOY

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Objective: Agenesis of the lung, defined as the complete absence of the lung tissue, main bronchus and pulmonary vasculature is found once in every 10 000 autopsies. Almost half of the patients with agenesis of the lung have other congenital anomalies, e.g. esophageal atresia, tracheal stenosis or others. For cardiac surgery of ASD II we employed CPB with circulatory arrest and deep hypothermia, because of difficult surgical exposure. We state that the congenital defects in primitive respiratory apparatus were responsible for complete absence of the lun.
Methods: A boy (born at 42 weeks with 3280 g and 9 Apgar score) was diagnosed in infancy by roentgenographic findings, because of pneumonia. Agenesis of the right lung was recognized. At bronchoscopy there were no signs of carina and right bronchus, terminal trachea was slightly narrowed. Chest X-rays at the age of six year showed displacement of the cardiac shadow, absence of the right lung and presence of left-sided thoracic scoliosis with hemivertebrae T7. Cardiac catheterization revealed main pulmonary artery, left pulmonary artery, very short stump of the right pulmonary artery and a few collateral vessels directed from the main pulmonary artery to the left atrium. ASD type II was diagnosed by echocardiography. Patient with mild circulatory and respiratory symptoms was referred to surgery. The cardiac surgery was performed at the age of six year through a midline sternotomy. The right atrium was positioned posteriorly at the right costovertebral region and the left atrium anteriorly. Because of difficult exposure a single venous cannula was inserted into right atrium, CPB with circulatory arrest and deep hypothermia (16.50C) was used. ASD II was directly sutured through the left atrium.
Results: Eight years after surgery 14-years-old boy was re-examined. His physical growth was satisfactory, without complaints. On spirometry there was moderate mixed deterioration of the ventilation.
Conclusion: The factors responsible for agenesis of the lung are not clearly understood. In our patient development of the right pulmonary artery stopped 1 cm from its origin. From embryological consideration it is known that in embryo trachea grows earlier and pulmonary artery (from sixth arch). Thus, vascular underdevelopment of the right pulmonary artery could not attribute to produce lung agenesis and was secondary malformation.

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PREOPERATIVE FLUVASTATIN TREATMENT REDUCES C-REACTIVE PROTEIN LEVEL WITHOUT ANY IMPROVEMENT ON POSTOPERATIVE OUTCOMES IN PATIENTS WITH UNSTABLE ANGINA

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Objective: Low-grade inflammation as detected by elevated C-reactive protein levels may predicts the risk of postoperative complications in patients with unstable angina undergoing coronary artery bypass surgery. The effect of inflammation on mortality and morbidity may be attenuated by
Methods: Sixty consecutive patients with symptomatic coronary artery disease underwent coronary artery bypass grafting. Patients were randomly grouped according to the statin therapy receiving and CRP-elevation (>5 mg/L) and to a control group in which had no statin therapy because of no preoperative CRP-elevation (from 0 to 5 mg/L). CRP was determined preoperatively and activated partial thromboplastin time, platelets, white blood cells count and lipid profiles measured before surgery (2 weeks), 24 and 72 h thereafter. The clinical course was prospectively recorded.
Results: The in-hospital results were similar between the two patients groups. Although the postoperative CRP-level significantly reduced by statin therapy, the early postoperative outcomes did not differ among the two groups.
Conclusion: In this prospective, randomized study, a preoperative level of CRP>5 mg/l did not predict in-hospital postoperative complications in patients with unstable angina and a preoperative statin treatment did not improve the early outcome following elective on-pump CABG.

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REQUIREMENT FOR HOMOLOGOUS DONOR BLOOD AND ITS COMPONENTS DURING OPEN HEART SURGERY WITH CRYSTALLOID OR BLOOD CARDIOPLEGIA UNDER THE BLOODLESS CARDIAC SURGERY PROGRAMME: A COMPARATIVE ANALYSIS

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Objective: Even today, when the ill effects of transfused donor blood are clearly known and authentically documented, cardiac surgery centres continue to be one of the biggest consumers of donor blood or its components. Under the bloodless cardiac surgery programme we decided to compare the need for homologus donor blood or blood components during open heart surgery using standard crystalloid or blood cardioplegia in adult patients with valvular, ischemic or congenital pathologies.
Methods: Adult patients (n = 107) who underwent surgery for correction of valvular, congenital pathologies or coronary revascularization with the use of extra corporeal circulation, under the bloodless cardiac surgery programme of our department were considered for this study. The patients were randomized into two groups depending upon the type of cardioplegia administered: Group 1-crystalloid cardioplegia and Group 2- blood cardiople-

gia. Intra and post-operative blood loss was assessed while changes in the parameters of the coagulation system like activated clotting time, activated partial thromboplastin time, prothrombin index, thrombin time and fibrinogen was assessed at three different stages for both the groups. A t-test, independent by group was carried out for these parameters and for intra, post-operative (drainage tube) blood loss in the two groups. The comparison was considered statistically significant for $P<0.05$.
Results: Intra-operative bloodloss for Group1 on an average was 595.5+154.9 ml and for Group II was 557.2+104.9 ml. Post-operative blood loss ($P<0.05$) was 288.3+169.8 ml and 219+102.4 correspondingly for Group1 and Group2. Parameters of the coagulation system for Group 2 were closer to their normal values than for Group 1 during all stages of their assessment. 63.6% patients from Group1 and 78.8% from Group2 did not require donor plasma infusion at all. The mean amount of donor plasma required for Group 1 was 300.3+247.5 and 210.5+140.6 for Group 2 ($P<0.05$). There was no requirement for donor blood transfusion in 81.8% patients from Group1 and 92.3% patients from Group2.
Conclusion: There is a statistically significant reduction in post-operative blood loss and mean amount of donor plasma requirement with blood cardioplegia as compared to crystalloid cardioplegia. The recovery of the coagulation system (returning of the parameters to initial normal values) in the early post operative period is better facilitated by blood cardioplegia. Blood cardioplegia reduces the need for use of donor blood or its components.

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ESTIMATION OF HEAT EXCHANGER MEMBRANE INTEGRITY ESTIMATION BY AIR PRESSURE METHOD

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Objective: Recently a new issue of The Academy Newsletter journal of American Cardio-vascular perfusions Academy has published an article "Testing of Heat Exchangers in?? Membrane Oxygenators: The Air Pressure Method" (Carole Hamilton, Jutta Stein, Rainer Seidler, Robert Kind, Karin Beck) where they offered a new method to estimate the membrane integrity in the heat exchanger separating blood and water medium.
Methods: In a case of membrane integrity abnormality, water -to-blood leakage may occur, and it will result in hemolysis and penetration of foreign microorganisms. To check the HE integrity by a standard method it is sufficient to adjoin heater-cooler hoses and switch on water circulation for 5 min with dry oxygenator, which is not always possible, especially during the urgent operations. ?? The authors offer to use the method of air pressure, when the water outlet is blocked, and a system of a pressure manometer, tubes and a rubber bag is fixed in the area of inlet. With the rubber bag they make a pressure of 250 mmHg in the blocked system and then it is delivered on the membrane surface.
Results: In a normal condition the pressure is lowed by 2-3 mmHg for 30 seconds. If the membrane is damaged, the pressure will be lowed much rapidly and this speed depends on the defect dimension. Applying this method we modified it while testing oxygenators of various manufactures and constructions. Our modification included dead space decrease, where?? the positive pressure is set up by shortening system length and diameter, and we also offer to use continued system as a monobloc unit, refusing the HE water outlet cap usage. Our modification is presented with a Y - form splitting, running from the manometer and fixing to the HE outlet and inlet. It allows to minimize pressure leak from the system.
Conclusion: We were able to detect expressed damage of one of the oxygenators applying this device. While testing it the pressure-blast was decreased from 250 mmHg to 0 mmHg for 3 seconds.

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EFFECT OF ISCHEMIC PRECONDITIONING ON MYOCARDIAL PROTECTION AFTER CORONARY ARTERY BYPASS GRAFTING

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Objective: The cardioprotection effect of ischaemic preconditioning (IP) has been questioned in diabetic patients who are on oral hypoglycaemic medication. The present prospective randomized study was designed to investigate the effect of IP in type II diabetic patients undergoing elective coronary artery bypass surgery (CABG).
Methods: Forty type II diabetic patients who were on gliclazide with stable angina undergoing elective CABG for triple vessel coronary artery disaese were prospectively randomized into control or IP groups (20 patients for each group). The IP patients received two periods of 2-min ischemia followed by 3-min reperfusion by aortic cross-clamped after the initiation of cardiopulmonary bypass. Perioperative cardiac specific troponin I (cTnI), creatine kinase cardiac isoenzyme (CKMB), CPK, lactate release and hemodynamics (heart rate, mean blood pressure, CVP, mean pulmonary artery pressure, pulmonary capillary wedge pressure, PVR, SVR and cardiac index) were recorded at 7 different time points.
Results: There were no differences in baseline levels of cTnI, CKMB, CPK and lactate levels between the groups. Though there was no difference in postoperative CK-MB ($P = 0.965$) and CPK levels ($P = 0.756$), patients who received IP released significantly less cTnI than did the controls postoperatively (cross-clamp release, IP, 0.06±0.17 vs. control, 0.01±0.013ng/ml; 1 hour, IP, 0.79±0.8 vs. control, 2.51± 0.58 U/L; 6 h, IP, 1.04±0.76 vs. control, 2.83±0.58 ng/ml; 48 h, IP, 0.09±0.04 vs. control, 0.57±0.25 ng/ml; analysis of variance [ANOVA] for repeated measurement, $P = 0.003$). Lactate release were also significantly lower in IP group than in control group ($P = 0.005$).
Conclusion: The present findings show that in diabetic patients with three-vessel coronary artery stenosis undergoing a CABG operation, IP has a protective effect against ischemia-reperfusion injury. However, there is no clinical benefit or improvement in the postoperative haemodynamic data.

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EARLY AND MID-TERM OUTCOMES OF VALVE SURGERY IN PATIENTS WITH CHF AND WITH POOR LV FUNCTIONS CAUSED BY ISOLATED AORTIC, ISOLATED MITRAL OR COMBINED AORTIC AND MITRAL VALVE INSUFFICIENCY

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Objective: In this study, it is inspected that 12 patients; who had valve operation; whose serious LV disfunction had developed, NYHA class were III-IV, EF was 40% and under, LVESD was upper than 70mm and PAP was 30mmHg; in our clinic between April 2001 and April 2005.
Methods: It is applied to MVR because of MR for both of the patients, AVR because of AR for 4 patients, AVR+Ascendant Aortic Valve Replacement because of AR+Ascendant Aorta Aneurysm for other 2 patients, AVR+MVR because of AR+MR for 3 patients and AVR+Mitral repair because of AR+MR for 1 of them. Age average of the patients, all of them are men, is 34.9. Their average EF was 31.66%, NYHA klas values were average 3.4.
Results: It is evaluated that mortalities, morbidities, postoperative sympthom situations of the patients and sizes of their EF, LV and changes of PAP values. Average following duration is 33 months and following rate is 100%. Mortality has not taken progress in operative early and middle periods in none of the patients. It is not needed to reoperation, patients' frequency of staying at the hospital has decreased. The sizes of LV have become smaller, EF values have increased. Patients' functional capacities of after surgery have improved independent from preoperative EF values. Complications, like stroke, emboly, bleeding, paravalvular leak, hav not developed. CHF has developed in 2 patients in 22nd and 23rd months.
Conclusion: As it is stated in the studies that low EF is not a diagnostic factor at the operative mortality, but it is determined that it is a diagnostic for long term lie and period without sympthoms. It is thought that it is important for avoiding operative mortality with a good and Standard miokardial protection application and shorter crossklamp duration. LV disfunction is characteristic for patients' late period mortality after heart valve operations. If LV disfunction spreads, expectation of shorten long life according to LV disfunction could not be corrected completely with valve operations. Despite bad LV functions in these patients, mortality and morbidity of applied surgery are high and it is on acceptable measure and results of middle period give satisfaction. Even if the number of patients are restricted, the gotten diagnoses, despite of the bad postoperative results which are stated in the literature, it is in the quality of evaluation from the way of the inspecting profit/loss situation carefully and necessity for surgery interference to the patients.

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MITRAL VALVE RECONSTRUCTION IN PATIENTS WITH ISCHEMIC VERSUS NONISCHEMIC MITRAL REGURGITATION IN DILATED LEFT VENTRICLE

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Objective: Mitral regurgitation contributes to restricted survival in patients with dilated left ventricle. This concerns patients with ischemic as well as patients with non-ischemic mitral regurgitation. The intermediate and mid-term outcome of mitral reconstruction in both groups was studied.
Methods: The retrospective analysis included 163 patients with isolated mitral valve reconstruction or in combination with other interventions in dilated left ventricle. This included 73 patients (54 (74%) men, and 19 (26%) women, mean age 67±8.8 years) with ischemic and 90 patients (61 (67.8%) men, 29 (32.2%) women, mean age 64±11.7 years) with non-ischemic mitral regurgitation. In the 73 patients with ischemic mitral insufficiency, the mean left ventricular ejection fraction was 42.9±14.5%. The left ventricular end diastolic diameter (LVEDD) varied from 56 to 81 mm (mean: 62.2±5.1 mm), and 67% of the patients were in NYHA class III or IV. The mean follow-up time was 873±286 (439 - 1479) days. In the group of the non-ischemic mitral regurgitation were 90 patients. The mean left ventricular ejection fraction was 52.9±14%, and the left ventricular end diastolic diameter (LVEDD) ranged from 56 to 78 (mean: 62.2±5.2) mm, and 52% of the patients were in NYHA class III or IV. The mean follow-up time was 950±304 (462–1515) days. We have analyzed in the follow-up the survival, hospitalizations, complications, echocardiography, quality of life etc.
Results: The in hospital mortality in mitral valve reconstruction was 6.8% in the ischemic group, and 4.4% in the non-ischemic group. Postoperative revision for bleeding was necessary in 12 patients (7.3%), postoperative use of IABP in 7 patients (4.3%), temporary dialysis in 7 patients (4.3%), the intensive care time was 3 days, and the average length of hospitalization was 13 days. During the follow-up, late deaths occurred in 9 patients (13.25%) in the ischemic group, and in 6 patients (7.14%) in the non-ischemic group. 95% of the patients were in the NYHA class I or II. The mean left ventricular end diastolic diameter (LVEDD) was 58.6±8.1 mm in the ischemic group, and 55.1±7 mm in the non-ischemic group.
Conclusion: Mitral reconstruction is effective in patients with dilated left ventricle and has an acceptable operative mortality and morbidity. The mid-term follow-up revealed good life quality in surviving patients.

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ANALYSIS OF ENDOTHELIALIZED BIOPROSTHESIS IN THE SHEEP MODEL

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Objective: The long term results of bioprosthetic heart valves (BPHV) are still disappointing due to tissue degeneration, calcification and inflammation. Native human heart valves are physiologically covered by a monolayer of endothelial cells (ECs), which act as an effective barrier between the tissue and the blood. This monolayer is not present in BPHV. It is assumed that the lack of this endothelial barrier contributes to the long-term failure of bioprostheses. The aim of the study was to clarify the benefit of an endothelialized BPHV regarding calcification and inflammation.
Methods: Porcine aortic BPHV were fixed in 0.2% GA and detoxified with an acetic acid bufferbased amino-reagent (0.1 M Urazole) for one week. The fixed valves were inserted in the descending thoracic aorta of 15 juvenile sheep weighing 43 + 3.25 kg for a period of 12 weeks. Three groups were compared: (A) 0.2% glutaraldehyde (GA) + detox fixation, (B) 0.2% GA + detox fixation + EC, C) 0.2% GA fixation (control). For the endothelialization, autologous cells were harvested, masscultured and seeded on fibronectin-precoated valves before implantation. Explanted valves were analyzed histologically for an inflammatory reaction. Tissue calcium was measured at the atomic absorption spectrophotometer and expressed as ?g calcium per mg dry weight of tissue. Assessment of EC coverage was done by scanning electron microscopy (SEM).
Results: The highest level of calcification was found in the 0.2% GA group in both leaflets and aortic wall, with statistical significance towards the detoxified groups ($P<0.05$). Both detoxified groups had similar Ca++ results. Beyond transanastomotic pannus outgrowth, surface endothelialization was completely inhibited in the control group. In both detoxified groups, sinuses were fully endothelialized, whereas leaflet endothelialization was restricted to the in-vitro lined group ($P<0.02$). Tissue inflammation both on the blood surface and the adventitia was most pronounced in the control group and least expressed in the endothelialized valves ($P<0.004$).
Conclusion: In the sheep model, in-vitro endothelialization further enhances the beneficial effect of GA detoxification with regards to low calcification and inflammation.

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SEVERE PATIENT- PROSTHESIS MISMATCH AFFECTS EARLY MORTALITY AFTER AORTIC VALVE REPLACEMENT FOR AORTIC STENOSIS

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Objective: Small valve size and patient-prosthesis mismatch generates high postoperative transvalvular gradients and may decrease early and long-term survival. The objective of this study was to evaluate whether mismatch affects early mortality after aortic valve replacement (AVR) for aortic stenosis.
Methods: The study included 701 patients who underwent AVR between 1985-2005 in our institution. The indexed effective orifice area (EOA) for each prosthesis was derived from published normal in vitro EOA divided by the patient's body surface area (BSA). If the indexed EOA was >0.85cm^2/m^2 PPM was considered clinically insignificant whereas mismatch was considered severe if the indexed EOA was = 0.65 and moderate if it was >0.65 and = 0.85.
Results: Early mortality was 5.4% (38/701) and moderate or severe mismatch was present in 46.5% of patients, neverthless severe mismatch was present in 12.8% of patients. Multivariate analysis revealed age = 70 years ($P = 0.001$) and severe patient-prosthesis mismatch ($P = 0.001$) as independent predictors of early mortality. Moderate mismatch was not a predictor of early mortality on both univariate and multivariate analysis.
Conclusion: Although moderate patient-prosthesis mismatch is not predictor of early mortality severe mismatch is independent predictor of early mortality in patients who underwent AVR for aortic stenosis. The indexed effective orifice area can be calculated at the time of operation and strategies to avoid severe mismatch should be developed.

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THE IMPACT OF PULMONARY OR AORTIC POSITION ON RECELLULARIZATION OF HEART VALVES; AN EXPERIMENTAL STUDY

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Objective: This study was performed to evaluate the influence on decellularized heart valves implanted into the pulmonary or aortic position.
Methods: Ten juvenile sheep were operated, implanting a decellularized xenograft into either the pulmonary or aortic position. Prior to exsanguinations echocardiographic examination was obtained. The valves were evaluated by gross examination, X-ray, light microscopy (H&E, serius red, Gomori, Weigert and von Kossa straining), and immunohistochemical staining (CD 31.34 and 68). Atomic absorption spectrometry was used to quantify determination of calcium.
Results: All animals showed fast recovery after surgery. Echocardiography showed a mean flow velocity of 0.8±0.1 m/s (pulmonary position) and 1.2±0.1 m/s (aortic position). Absence of valve regurgitation was seen in both groups. Gross examination showed smooth and pliable leaflets without retraction in both groups. Light microscopy showed a monolayer of endothelial cells at the wall and the base of the leaflets in both groups. In the deeper layers, however there was earlier recellularization with interstitial cells in the left side group. Collagen production was also in favor of left side group. There was no evidence of calcification in any decellularized xenograft, confirmed by atomic absorption spectrometry showed similar levels.
Conclusion: In the juvenile sheep, decellularized xenograft showed similar hemodynamic behavior in the pulmonary and aortic position, however there seems an earlier recellularization in favor for the left heart side.

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PROSTHETIC VALVE ENDOCARDITIS: IMPORTANCE OF SURGICAL TREATMENT

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Objective: Surgical therapy of prosthetic valve endocarditis is still associated with high mortality up to 80%. Further risk analysis and characterization of clinical features is of importance for further improvement of surgical results. The aim of this retrospective study was a risk analysis concerning clinical features of the pre-, intra and postoperative period.
Methods: Between 02/97 and 12/2003 52 patients (39 male, 13 female, age 62±11 years) were referred for surgical therapy of prosthetic valve endocarditis in our institution. Preoperative, intraoperative and postoperative features were evaluated on their influence on the early postoperative course and the mid-term follow-up.
Results: In the majority of pts the aortic valve was infected (n = 38, 73.1% of pts), followed by mitral valve (n = 22; 42.3%), tricuspid valve (n = 3, 5.7%) and pulmonary valve. Double valve affection was recorded in 10 pts (19.2%). Streptococci (n = 5, 9.6%) and staphylococci (n = 27, 51.9%) and others (n = 14, 26.9%) were identified as causative agents in blood cultures. The overall hospital mortality rate was 19.5% (n = 10), during the follow-up (mean follow up 2.1±1.8 years) further 9 pts (17.3%) died. The overall-mortality was 36.5%: Main predictor for hospital mortality in multivariate analysis was preoperative heart failure (P = 0.01) and staphylococcus aureus infection (P = 0.01). Predictors of overall mortality were staphylococci infection (P<0.01), heart failure (P = 0.02) and abscess formation (P = 0.02).
Conclusion: Surgical therapy of prosthetic valve endocarditis is still associated with quite high mortality in the early and mid-term follow-up. Predictors of outcome particular include preoperative risk constellation (heart failure, staphylococci infection).

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DIRECT LEFT VENTRICLE-TO-CORONARY ARTERY BYPASS WITH VSTENT DEVICE: PERIOPERATIVE OUTCOMES AND 1 YEAR FOLLOW-UP

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Objective: Recently a stent-based approach for surgical implantation of an expanded polytetrafluoroethylene (e PTFE) membrane covered stent (VSTENT) to provide a left ventricle-tocoronary artery bypass (VCAB) was developed (Percardia, Inc, Merrimack, NH). We describe the perioperative and 1 year follow-up results of the pilot phase of the ADVANTAGE study, designed to assess the feasibility and safeness of VSTENT implantation.
Methods: Eight patients referred to our hospital with diagnosis of coronary artery disease were eligible and accepted to be enrolled in the study. The mean age was 57.3±11.8 years and all patients were male. The patients underwent VSTENT implantation concomitant to traditional coronary artery bypass grafting. CABG was performed at first. VSTENT procedure was performed on-pump with beating-heart. The target vessel was exposed using a stabilizer and a 10 mm long incision was made. After exposure of the posterior wall of the coronary artery, an access needle was inserted in the myocardium through the posterior wall toward the ventricular cavity until there was backflow. The guide-wire was inserted and the needle removed. The delivery system was loaded on the wire and inserted in the myocardium. After correct positioning of the tabs, the balloon was inflated and afterwards deflated and removed. At the end, a saphenous vein patch was implanted. Perioperative data were registered in a collect form and 3 month, 6 month and 1 year follow-up was obtained by means of direct visits and telephone interviews.
Results: The target vessel for the VSTENT was diagonal branch in 2 patients and marginal branch in 6 patients (diagonale2 intermedio marginale3). Intraoperative trans-esophageal echocardiography demonstrated VSTENT flow. Successful VSTENT implantation was achieved in all patients. The mean number of associated grafts was 2.7±0.7. No perioperative death was registered. At 6-month follow-up, patients did not referred symptoms, echocardiograms was normal and no major adverse events or V-stent-related minor events were registered. 6-month-follw up angiography visualized normal positioning of VSTENT in all cases but flow detection was difficult. At 1-year follow-up no patients experienced VSTENT-related complications.
Conclusion: Our preliminary experience indicates that VSTENT is feasible and safe in the perioperative period and short-term follow-up. We did not report technical problems and VSTENT related events. The learning curve appeared to be simple. Middle term VSTENT patency was lower than expected but it correlates with intimal proliferation and represents a common problem of all noeluted stents

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LOSS OF VALVULAR NERVOUS ELEMENTS IN AORTIC VALVE INSUFFICIENCY

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Objective: The aortic valve is a complex structure and no recent studies evaluated nerve endings functions at leaflets' level. The aim of this study is to correlate morphologic changes (mainly loss, ramification and type of nerve fibers, presence of inflammatory cells) with aortic valve insufficiency.
Methods: 14 human aortic valves were obtained from patients with valvular insufficiency who underwent aortic valve replacement and 7 aortic valves from normal cryopreserved valves not suitable for clinical surgical implant. Pathologic valves after formalin fixation were embedded in paraffin with standard treatment and 4 micron thick slides were immunostained for actin, neurofilaments, PGP 9.5, GFAP, sinaptophysin, S100, vimentin, CD117 and acetylcholinesterase. Different antibodies microwave settings for antigen retrival were used. Seven frozen cases of normal valves in DMSO and embedded in OCT were evaluated with same immunostains both with immunohistochemistry and immunofluorescence. Negative control were obtained with primary antibodies omission.
Results: First results show a discrete immunoreactivity for neuronal markers (S100, GFAP, ?? PGP9.5, neurofilaments) in normal frozen valves, less intense and with a different distribution in pathologic valves, expecially in terminal arborizations. No significant inflammation or endothelial damage was present. Morphologic alterations were similar in all leaflets from same valve. Actin was positive in few cells, sinaptophysin and CD117 were constantly negative. Age had a minor influence on valvular innervation while nerves' distribution seemed to be related to valvular damage.
Conclusion: Our first data concerning human aortic valve leaflets innervation suggest that nervous fibers' alterations in aortic valve insufficiency are visible and often the main morphologic damage. No recent studies on human aortic valves innervation are present in scientific literature. Further studies are requested to better understand if innervation loss is related to aortic disease and to evaluate eventual differences between leaflets.

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CARDIOPULMONARY BYPASS AND AORTIC CROSS CLAMP DURATION: EFFECTS ON PLASMA TETRANECTIN AND OTHER KNOWN ENDOTHELIAL MARKER LEVELS

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Objective: Tetranectin (TN) is a fibrinolytic regulator negatively associated with coronary artery disease severity, the gene of which is recently identified to be transcriptionally upregulated in hypoxically stimulated human umbilical vein endothelial cells. Cardiopulmonary bypass (CPB) with hypothermic cardiac arrest is closely related with hypoxia, ischemia and anoxia of vascular endothelium. The aim of the study was to investigate the effect of CPB duration and/or aortic cross clamp (ACC) duration on plasma tetranectin and other known endothelial activation markers.
Methods: This study was conducted in 31 consecutive patients, undergoing first-time coronary artery bypass grafting with CPB and hypothermic cardiac arrest. Redo's, patients with seriously impaired L.V. function or recent M.I. were excluded. Cold blood cardioplegia was used. Peripheral blood samples were collected on the morning of operation, before induction of anaesthesia, 24 h and 72 h postoperatively and analysed for plasma levels of the endothelial markers: von Willebrand factor (vWF), angiotensin converting enzyme (ACE), P-selectin, E-selectin and Tetranectin (TN). TN, vWF, P-selectin, E-selectin levels were measured by using enzyme-linked immunoabsorbend assay and ACE activity was measured spectrophotometrically. The data were analyzed in a two-way ANOVA mixed model with endothelial markers as dependent variables and CPB duration (CPB<100 min, CPB>=100 min) or ACC duration (ACC>60 min, ACC>61 min) and time of sampling as independent factors to elucidate the interaction between them. Mann-Whitney test was used to elucidate the percent change from baseline values of each variable at every time of sampling.
Results: The statistical analysis indicated significant interactions of TN with CPB duration and time [F (2.58)=3.421; P<0.040] and ACC duration and time [F(2.58)=3.251; P = 0.045] but no interactions of all other measured markers

with CPB or ACC duration and time. There was no significant difference in TN and P-selectin percent change from baseline levels between CPB<100min and CPB>=100min at 24 h, but a statistically significant difference was found (P = 0.05, P = 0.05, respectively) at 72 h postoperatively. Moreover, there were no significant differences in TN and P-selectin percentage changes from baseline levels between ACC<60 min and ACC>61 min in the 24 h but statistically significant differences were observed (P = 0.049, P = 0.05, respectively) at the 72 h, postoperatively. No statistically significant differences were found between CPB<100 min and CPB>=100 min or ACC<60 min and ACC>61 as regard vWB, E-selectin and ACE percent change from baseline values both at 24 h and at 72 h postoperatively.
Conclusion: Our findings indicate that TN levels are well correlated to the CPB and ACC duration and thus to the degree of hypoxia/ischemia of endothelium early in the postoperative period.

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IS THERE A DIFFERENCE BETWEEN CRYOPRESERVED AND DECULLERATED PULMONARY HOMOGRAFTS IN RIGHT VENTRICULE OUTLET TRACT POSITION IN ROSS OPERATION

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Objective: The Ross procedure provides excellent long-term results in the majority of patients. However, dysfunction of the pulmonary homograft in young patients remains an unresolved problem that may be related to immunologic factors. The purpose of the study was to compare the clinical and echocardiographic and CT scan findings of the two types of homografts (cryopreserved homograft and decellularized homograft).
Methods: 17 patients who received a decellularized pulmonary homograft during Ross-procedure (median: 20 months postoperatively) and 18 patients who underwent a Ross-procedure with cryopreserved pulmonary homograft (median: 33 months postoperatively). underwent CT with angiography and resting echocardiography.
Results: Neither the pressure gradients (mean: 9±4 vs. 10±4 mmHg; P = 0.64) across the homograft, nor the indexed effective orifice area [EOAI] (0.93±0.80 vs. 0.93±42 cm^2/m^2; P = 0.96), or the degree of regurgitation differed between the decullereted and cryopreserved homografts. The EOAI showed a significant correlation with the smallest homograft-conduit-area measured on CT (r = 0.81; P<0.001) which was most frequently (n = 23) measured on the level of the proximal anastomosis or valve and only occasionaly found on the mid-tubular or distal level (n = 5). Calcifications were observed in 3 cases. The diameter of the homograft conduits was significantly smaller than at implantation (19 and 20 mm vs. 25 mm at implantation in both groups; P<0.001).
Conclusion: Despite a significant shorter follow-up in the decellularized pulmonary homograft group, no functional or radiologic differences were observed as compared to cryopreserved group. In the short term observation we did not observe a significance differences in pressure gradients on the homografts (cryopreserved, decullareted), but still in the group of decellurised conduit it was lower.

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PULMONARY EFFECTS OF N-ACETYLCYSTEINE IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS SURGERY WITH CARDIOPULMONARY BYPASS

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Objective: Cardiac surgery and cardiopulmonary bypass (CPB) initiate a systemic inflammatory response which adversely affects postoperative pulmonary function. The development of strategies to control the inflammatory response following cardiac surgery is currently the focus of considerable research efforts. The purpose of the present study was to assess the pulmonary effects of Nacetylcysteine (NAC) in patients undergoing Coronary artery bypass graft surgery (CABG).
Methods: In a randomized, double blind, clinical trial study (April-October 2005) in our Institution, forty consenting patients undergoing elective CABG were randomized into two groups. Group I (20 patients) received a physiologic saline solution as a placebo one hour before CPB; Group II (20 patients) received 50 mg/ kg NAC intravenously for one hour before CPB. Perioperative hemodynamic and pulmonary data were recorded. Postoperative tracheal extubation was accomplished at the earliest appropriate time. Data were analyzed by SPSS.10 software using appropriate tests including Chi-square and t tests. The results were evaluated as the mean ±SE and considered statistically significant for p < 0.05.
Results: The preoperative demographic and basic clinical variables including mean age (59.1±1.4), body mass index (25.7±0.6), cardiac ejection fracion (47.1±1.7), pulmonary function test (PFT) and CPB time (109.2±4.7) were similar in the two groups. Patients in Group I exhibited significantly lower dynamic lung compliances in the ICU (P < 0.05). The rapid shallow breathing index (RSBI) was significantly more in Group I (P < 0.001). Both groups exhibited significant postoperative increases in alveolo-arterial oxygen difference (AaDO2) (P < 0.001), but patients in Group II exhibited significantly lower increases in postoperative AaDO2 (P < 0.05). Other hemodynamic and pulmonary data (static lung compliance, PaO_2/Fi O_2 and PaO_2/PAO_2) exhibited no differences between the groups in the ICU at 0, 3, 6, 12 and 24 h after admission. There was no significant difference in terms of mechanical ventilation duration, intubation time and ICU stay.
Conclusion: This clinical study reveals that administration of NAC to patients undergoing elective CABG with CPB improves some pulmonary parameters and systemic oxygenation in the postoperative period but does not alter the duration of mechanical ventilation and ICU stay. So we believe that the effect of NAC in the pulmonary function after CPB needs to be further evaluated with lower and/or higher doses of NAC to obtain more reliable results.

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GENETIC PREDISPOSITION IN POST-OPERATIVE BLEEDING IN PATIENTS SUBMITTED TO CARDIAC SURGERY UNDER EXTRACORPOREAL CIRCULATION

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Objective: To determine if there are genetic polymorphism associated with coagulation, fibrinolysis and inflammation, that can affect post-operative bleeding in patients submitted to elective cardiac surgery under extracorporeal circulation.
Methods: 26 patients who didn't receive anti-fibrinolytic treatment, from a total of 50 patients submitted to elective cardiac surgery under extracorporeal circulation, were studied. Data was compiled related to coagulation, complement and fibrinolysis, preoperatively, at admission to the intensive care unit, at 4 and 24 h. Bleeding and its relationship with the different polymorphism were analyzed: insertion/delection in the intron 16 of the gene of the angiotensin converting enzyme: el polymorphism G1691A of the factor V gene (Leiden); the polymorphism G20210A of the factor II gene; el polymorphism 4G/5G of the plasminogen activator inhibitor gene (PAI-1), el Alu-repeat insertion/delection of the tissular plasminogen activator gene (tPA) and the polymorphism of the first intron the tumoral necrosis beta factor gene (TN?F+250).?? The Pearson Chi2 and the Fisher exact test, univaried analysis of the variable and non-parameters tests such as U of Mann-Whitney or Kruskal-Wallis, in accordance to the sample's characteristics, were used.
Results: 1) the insertion/delection polymorphisms of the angiotensin converting enzyme gene (P = 0.046), of the plasminogen activator inhibitor gene (PAI-1) (P = 0.037) and of the tumoral necrosis beta factor gene (TN?F+250) (P = 0.029); were associated to greater bleeding in the 24 h postoperative period. 2) The GG Homocygots (TN?F+250) presented higher basal plasmatic levels of Interleukine-6 (P = 0.01). 3) Homocygots 5.5 of the plasminogen activator inhibitor gene (PAI-1) polymorphism were associated to lower levels of complement: C1-inhibitor (p 0.038) and C7 (P = 0.016); of leptines (P = 0.019) and of plasminogen activator inhibitor gene (PAI-1) (P = 0.019).
Conclusion: We have identified three genetic polymorphisms associated with post-operative bleeding that can help us to stratify the pre-operative risk in heart surgery under ECC to optimize prophylactic therapeutic measures.

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ADENOSINE A1 & A3 RECEPTOR ACTIVATION BEFORE ISCHEMIA REPERFUSION IN NORMAL AND HYPERTROPHIED HEART

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Objective: The increased susceptibility of hypertrophied hearts to ischemic injury has long been recognized. The purpose of this study was to investigate

the effects of pre-ischemic pharmacological preconditioning (PC) with adenosine A1 and A3 receptor activation on the recovery of the isolated myocardium after cardioplegic ischemia.
Methods: In addition, we examined p38 MAPK activation in this process. Two different modes of PC in WKY and SHR hearts were studied: In the perfusion mode (P), isolated rat hearts were perfused with A1 receptor agonist (CCPA) or A3 receptor agonist (Cl-IB-MECA), 10 nM for 20 min, followed by 30 min of warm cardioplegic ischemia and 30 min of reperfusion. In the injection mode (I) CCPA or Cl-IB-MECA (100 mg/kg), were administered 24 h before the experiment. Phosphorylated p38 MAPK was examined using western blot analysis.
Results: CCPA improved recovery of left ventricular developed pressure (LVP), ATP levels and infarct size of the hearts (normal and hypertrophied) in both modes of treatment. LVP recovery of WKY hearts: P = 78.3±2.9%, I=75.2±4.0% and control=57.6± 4.1%. In SHR hearts P = 60.1±5.9%, I=64.2±8.1%, control=38.5±3.7% (P<0.0005). ATP levels in WKY hearts (nmole/mg protein) was P = 15.8±0.2, I=15.4±0.1, and controls=3.1±0.5. In SHR hearts P = 12.4±0.3, I=14.9±2.8 and control=3.3±1.1(P<0.005). Cl-IBMECA was partially beneficial. Both agonists mediated activation p38 MAPK in both modes of treatment. This protection was completely abolished by prior treatment with their antagonists that had no effect on their own.
Conclusion: CCPA in both modes of treatment and Cl-IB-MECA especially in the injected mode were beneficial in protecting the perfused isolated rat heart (normal and hypertrophied) subjected to normothermic cardioplegic ischemia (1st and 2nd window of PC). This protection was partially related to the increased phosphorylation of p38 MAPK before and during ischemia.

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LEFT ANTERIOR DESCENDING CORONARY ENDARTERECTOMY: EARLY AND LATE RESULTS IN 227 CONSECUTIVE PATIENTS WITH REPEAT CORONARY ANGIOGRAPHY BACK-UP

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Objective: Following advances in percutaneous coronary interventions, many patients that referred for coronary artery bypass grafting have diffuse coronary artery disease. We performed this retrospective study to determine whether left anterior descending (LAD) coronary endarterectomy is a safe and effective therapy to whom cannot otherwise be completely revascularized.
Methods: Between November 1996 and October 2005, 227 of 9064 (3%) consecutive patients underwent LAD coronary endarterectomy with coronary artery bypass grafting. Median age was 59 years, 42% had unstable angina, 54% of patients had left vetricule dysfunction. All patients underwent LAD endarterectomy with coronary artery bypass grafting to the LAD. The left internal mammary was grafted to the LAD in 194 patients (%85), and 15 of 194 (%8) of these required and additional vein patch to the endarterectomized bed. 227 patients had 632 anastomosis with 271 endarteectomies.
Results: Overall hospital mortality was 2% (4 of 227). One-year survival was 94%, whereas 5-year survival was 85%. Freedom from cardiac events (angina, myocardial infarction, congestive heart failure, percutaneous coronary interventions) was 90% at 1 year and 72% at 5 years. Clinical and angiographic variables were analyzed in 60 study patients who had coronary endarterectomy (CE). At a mean of 15.2 months of follow-up, bypass grafts on 62% of endarterectomized vessels were patent.
Conclusion: Despite the presence of diffuse coronary artery disease, coronary artery bypass grafting with LAD endarterectomy offers excellent results with very low hospital mortality and morbidity, and favorable long-term survival.

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MINIMALLY INVASIVE APPROACH FOR IMPLANTATION OF LEFT VENTRICULAR EPICARDIAL LEADS FOR BIVENTRICULAR RESYNCHRONISATION

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Objective: Biventricular pacing has demonstrated improvement in cardiac function in treating congestive heart failure associated with ventricular dyssyncrony. Sometimes the endocardial implantation of the lead by way of the coronary sinus fails. In these cases an epicardial approach could be a valid alternative.
Methods: Between February 2003 and September 2005, 19 patients with depressed left ventricular function (mean ejection fraction 28.89±8,08% ranging from 15 to 40%), left bundle-branch-block (QRS >140ms) and congestive heart failure NYHA III or higher were enrolled. 12 were males, mean age was 71.42±5.07 years,4 had previous cardiac surgery. A limited left-lateral thoracotomy (10 cm) was performed after a thoracic epidural space blockage was performed 15 min prior to an incision being made at the Th 3-Th 5 level. 4 patients were awake. By using routine instruments, an incision was made under the phrenic nerve and the device was placed on the postero-lateral left ventricular wall in the obtuse marginal branch area. In 15 patients we implanted an epicardial lead with a suture and in 4 patients were placed a steroid-eluting bipolar suturless lead. In a second moment the lead was guided subcutaneously to the pacemaker.
Results: No hospital deaths and major complications occurred. Mean intraoperative threshold was 1.13±0.72 V. All patients remained in the intensive care unit for less than 18 h. Chest drain were removed after a mean of 2 days and the patients were discharged after a mean of 5 days. Postoperative pacing thresholds at 7,5 months follow-up were satisfactory in all cases and there was no lead dislocation. The percentage of responder patients (based on NYHA class improvement) was 80%.
Conclusion: Epicardial approach is effective and safe and it can be considered a primary option for resynchronization therapy in congestive heart failure.

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PALLIATION IN CONGENITAL CARDIAC SURGERY: SYSTEMIC-TO-PULMONARY ARTERY SHUNTS - ANALYSIS OF 577 PATIENTS

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Objective: Although indications for systemic-to-pulmonary artery shunts are limited in modern pediatric cardiac surgery era, they are still used in complex congenital pathologies. Shunt operations are indicated in patients with conotruncal anomalies, with single ventricle physiology and in candidates for staged arterial switch correction. While toracotomies were preferred at the begining, current strategy is median sternotomy especially in complex pathologies. Significant predictors of mortality are; type of underlying pathology, size of graft used, place of anastomosis on the pulmonary artery and surgical experience. A total of 577 modified Blalock-Taussig shunt operations performed in a single institution during a period of 19 years were retrospectively analyzed.
Methods: Patients ages varied from 1 day to 20 years. In the first period (1985-1995) shunts were constructed in 311 patients including 25 neonates. During that period shunts were performed with thoracotomy depending on the side of the aortic arcus, using 5 mm goretex conduits. In the next period (1995-2004) a total of 266 patients were operated. In 30 of 52 neonates operated in this period, median sternotomy approach with 3.5-4 mm goretex conduit was preferred. For the patients older than 1 month thoracotomies were mostly used with 5 mm goretex grafts.
Results: For the first period mortality was calculated as 12% overall and 15% in the neonates while data for the second period showed 9% and 14% mortality for overall and neonate group respectively.
Conclusion: Current surgical strategy for systemic-to-pulmonary artery shunt operations the neonates is median sternotomy with special care of constructing distal anastomosis on the pulmonary bifurcation.

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EFFICIENCY OF THE RADIOFREQUENCY MAZE IN LONG TERM FOLLOW-UP AFTER CARDIAC OPERATIONS

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Objective: Atrial fibrillation (AF) is frequent complication of the rheumatic mitral valve and congenital heart diseases, inducing high risk of thromboembolic complications. Unsatisfactory outcomes of conservative therapy have stimulated revision of surgical technologies directed on effective treatment of this complication. One of the first methods of surgical treatment AF (Maze procedure) was introduced in clinic by J. Cox in 1989. Aim of our study is

evaluation of long-term results of radiofrequency modification of Maze procedure combined with other cardiac surgery.
Methods: Seventy-eight patients, aged from 12 to 67 with chronic atrial fibrillation (mean longevity 4.3±2.2 years) were operated from 1999 to 2005. Combined (epicardial and endocardial) monopolar non cooling RF ablation (Maze procedure) was performed in all CPB cases. Concomitant procedures: mitral valve replacement - 61 pts, double valve replacement - 3 pts, CABG - 5 pts, congenital septal defects repair - 9 pts. Cardiopulmonary bypass was used in all operations. Mean ablation time was 13.6±3.2 min.
Results: All the patients were discharged from the hospital. Thirty days efficiency were 78.4% (61 pts) with decreasing to 50.5% to the fifth year after procedure. Non-effective cases (17 pts –21.6%) included: atrial flutter and fibrillation persistence in 13 pts (16.7%), sick sinus syndrome and pacemaker implantation in 4 pts (4.9%). In all cases peak A at the echocardiogram was more than 0.8 m?s-1. All patients after AF recurrence underwent electrical conversion and admission of amiodarone long-term after operation. 53 pts (68%) demonstrated sinus rhythm to October 2005. No tromboembolic complications and no late death in this group was revealed.
Conclusion: Radiofrequency Maze procedure is successful in early follow-up period without specific complications. Efficiency of this procedure decreases in long-term follow-up to 68% at antiarrhythmic therapy.

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SIXTYFOUR-ROW MULTISLICE COMPUTED TOMOGRAPHY IN PATIENTS WITH VASCULAR RING

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Objective: Vascular ring is a rare congenital abnormality often representing with common respiratory and gastrointestinal symptoms. Our aim was to evaluate trends in diagnostic tools used for the surgical treatment and their impact on the outcome.
Methods: Retrospective analysis of 13 patients with vascular ring diagnosis at the Institute of Cardiology, Istanbul University between April 1988 and December 2005 was realised. Eight patients with double aortic archus and 5 patients with aberrant right subclavian artery were included in the study. Mean age and weight of patients were 4.9 years and 12.9 kg respectively. Diagnostic tools used were barium esophagogram, transthoracic echocardiography, angiography, thorax CT and MR angiography. Additionally 64-row multislice CT was used for the last two cases. Tracheal compression was found in 8 and esophageal compression in 6 of 13 patients.
Results: There was no perioperative or postoperative death. Two complications occurred; pericardial effusion and subcutaneous emphysema in 2 patients. Hospital stay was 4–35 days according to the associated cardiac pathologies. With the use of MSCT examination preoperative evaluation period and postoperative hospital stay diminished apparently.
Conclusion: Sixtyfour-row multislice computed tomography with 3D reconstruction allows a precise evaluation of airway and esophagus compression with a detailed assessment of vascular anatomy. Major advantages of the MSCT which are especially accentuated in the pediatric patients are; less invasiveness, short scanning time which avoids deep sedation/anesthesia, higher image quality and resolution and reduction of radiation dose. The most important limiting factor is the cost of the diagnostic tool.

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SURGICAL TREATMENT OF THE ISCHEMIC HEART FAILURE

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Objective: To evaluate the results of the surgical treatment in patients with ischemic heart disease complicated heart failure.
Methods: From January 2000 to December 2005, 164 patients underwent surgical treatment. There were 156 men and 8 – women, with a mean age 55±7, whom had prior one or more myocardium infarction, with 3-4 NYHA functional class, and EF less then 40%.?? With echocardiography study we estimated left ventricular and mitral valve dysfunction. For determine the necessity of surgical ventricular restoration we used preopera-tive modeling of "new" LV. Based on the data of complex estimation of anatomy and function of LV and MV we choose the optimal method of surgical treatment of ischemic heart failure. ?? Myocardial revascularization was performed in all patients, and also surgical ventricular reconstruction was performed in 84 patients (51%), mitral valve repair – in 32 patients (20%). Intraaortic balloon pump was used in 44 patients with EF less then 25%, which was introduced before one day of operation and was continued in early postoperative period.
Results: The hospital mortality rate was 4.9%. All surviving patients had early and late postoperative study (from 1 month to 5 year). The mean NYHA functional class decreased from 3.3±0.7 to 2.1±0.6 late postoperatively. The mean global ejection fraction improved early postoperatively from 29±5% to 35±6%, and late postopera-tively to 32±7%.
Conclusion: Surgical treatment of patients with left ventricular dysfunction includes myocardial revascularization as well as surgical left ventricular reconstruction and also mitral valve repair if it is necessary.

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SUPERIOR SEPTAL VERSUS TRANSSEPTAL APPROACH FOR MITRAL VALVE SURGERY: EARLY AND LONG-TERM RERULTS

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Objective: The purpose of this study was to evaluate the early and long-term changes of cardiac rhythm in the superior septal approach for mitral valve surgery.
Methods: We studied 409 patients who underwent mitral valve surgeries either through superior septal (177 cases, group 1) or transseptal approach (232, group 2) from September 1992 to August 2004. All patients underwent 12-lead electrocardiography on admission, discharge and the last follow-up day.
Results: No significant differences in ejection fraction (58.9±9.98% in group 1 vs. 56.7±8.20% in group 2, *P* = NS), left atrial size (54.6±14.94 mm in group 1 vs. 52.9±10.90 in group 2, *P* = NS), cardiopulmonary bypass time (98.3±63.05 min in group 1 vs. 89.5±47.33 in group 2, *P* = NS), and aortic cross clamping time (81.7±35.08 min in group 1 vs. 73.2±29.48 in group 2, *P* = NS) were found between the two groups. At discharge, 41 of the 72 patients with preoperative sinus rhythm in group 1 (60.0%) had maintained their rhythm and 48 of the 98 with preoperative sinus rhythm in group 2 (49.0%) had kept their rhythm (*P* = NS). In group 1, 44 of the 72 survivals with preoperative sinus rhythm (61.1%) maintained the same one during follow-up (8.1±3.45 years; median, 8.8; range, 1.6 ~ 13.1). And, in group 2, 71 of the 98 survivals with preoperative sinus rhythm (72.4%) kept their rhythm at late follow-up (8.4±3.37; median, 8.8; range, 0.6 ~ 13.1) (*P* = NS). The incidences of newly developed postoperative atrial fibrillation, junctional beat, and atrioventricular block were not significantly different between the two groups.
Conclusion: The superior septal approach for mitral valve surgery is considered to be safe from the rhythm disturbances comparing to transseptal approach in the early and long-term follow-up. However, the transseptal approach had a tendency to recover the sinus rhythm in the long-term follow-up.

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MITRAL VALVE REPAIR OF ISCHEMIC HEART FAILURE

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Objective: To evaluate the results of the surgical treatment in patients with ischemic heart disease complicated of left ventricular dysfunction and mitral insufficiency.
Methods: From January 2003 to December 2005, 32 patients underwent surgical treatment. There were 31 men and 1 women, with a mean age 54.6±6.2, whom had prior one or more myocardium infarction, with 3-4 NYHA functional class, EF less then 40%, and 3-4 grade of mitral regurgitation. ?? To estimate mitral valve function we used 3-D echocardiography and analyzed the following parameters: grade of mitral regurgitation, localization of regurgitation jet, sizes of mitral annulus, leaflets motion, depth of leaflets coaptation, papillary-annulus distance, papillary-papillary distance, diastolic flow in pulmonary veins, sizes of left atrium, pulmonary pressure, function and geometry of LV. For determine the necessity of surgical ventricular restoration we used preoperative modeling of "new" LV. Based on the data of complex estimation of anatomy and function of MV apparatus and LV we choose the optimal method of surgical treatment of ischemic

heart failure. ?? Myocardial revascularization was performed in all patients, and also mitral valve repair was performed in 26 patients (81%) and mitral valve replacement – in 6 patients (19%). For mitral valve repair we used annuloplasty with rigid ring and segmental resection of posterior or anterior leaflets in 8 patients, sutures annuloplasty with or without xenopericardial strip in 10 patients, annuloplasty with edge-to-edge technique in 8 patients. On mitral valve replacement we saved chordopapillary apparatus of posterior leaflet and partial anterior leaflet. ?? Surgical correction of coronary and mitral incompetence combined with left ventricular reconstruction in 11 patients (34%). Intraaortic balloon pump was used in 12 patients with EF less then 25%, which was introduced before one day of operation and was continued in early postoperative period.
Results: The hospital mortality rate was 6.3%. The mean NYHA functional class decreased from 3.4±0.6 to 2.1±0.7 postoperatively. The mean global ejection fraction improved from 28±4,0% to 32±6,0%, and mean grade of mitral regurgitation decreased from 3,0±0.5 to 1.4±0.6 postoperatively.
Conclusion: Surgical treatment of patients with ischemic heart failure includes myocardial revascularization as well as mitral valve repair and also left ventricular reconstruction if it is necessary.

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CORONARY ARTERY BYPASS GRAFTING OF LEFT ANTERIOR DESCENDING ARTERY WITH RADIAL ARTERY
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Objective: The aim of this study is to analyse the results of CABG of left anterior descending artery (LAD) with radial artery (RA) comparing with left internal mammary artery (LIMA).
Methods: During 2000–2005 years 528 isolated CABG procedures were performed. In 386 operations radial artery graft was used. In 53 (13.7% and 10.0% from the whole number) cases radial artery used for LAD grafting. In 375 (71.0%) procedures from the whole number LIMA to LAD was used. The mean age of the patients was 54.8 years in RA group and 55.3 in LIMA group. Male gender was 82.4% and 84.5%. Angina of III-IV class was in 84.7% and 80.8% ($P<0.05$) in both groups. Unstable angina was in 16.8% and 15.5%. History of myocardial infarction was in 60.8% and 61.5% in both groups. Left main trunk disease was in 11.9% and 12.5%.
Results: In all cases during operation and in postoperative period there were no ischemia in RA group. In 7 LIMA-LAD procedures haemodynamic instability in LAD area was found. In 6 cases an additional LAD vein grafting was performed and in 1 case additional RA graft was performed. The mean time of intensive care unit stay was 1.5 and 1.6 days in both groups. There was no mortality in group 1 and in group 2 died 5 (1.3%) patients. In 2 (3.8%) patients of group 1 there was a reccurence of angina in the follow-up period from 8 months to 4 years and in group 2 from 146 (39.0%) investigated patients ischemia during the same period was found in 8 (2.1%) patients in LAD area.
Conclusion: The usage of radial aretery for CABG of left anterior descending artery with radial artery accompanied with good immediate and follow-up results and is recommended for patients in which the CABG of left anterior descending artery with internal mammary artery is impossible or undesirable.

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UNEXPECTED POSTOPERATIVE EARLY STRUCTURAL DEFORMITY OF CARPENTIER – EDWARDS MITRAL PORCINE BIOPROSTHESIS
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Objective: Although the durability and hemodynamics of bioprostheses were improved biomechanically, stuctural valve deterioration is still one of the main complication of bioprostheses in the long-term period due to leaflet degeneration. The freedom from structural valvular dysfunction of Carpentier-Edwards porcine bioprosthesis has been reported to range from 70 to 87% at 10 years.
Methods: We describe a case of severe dysfunction of mitral porcine bioprosthesis one year after the operation.
Results: The patient was re-operated urgently due to tear and disruption of two leaflets of bioprosthesis replaced by mechanical prosthesis.
Conclusion: Structural deformity indicated the leaflet's tissue based degeneration after excluding infective endocarditis.

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RESTRICTIVE CARDIOMYOPATHY DUE TO SEVERE EPICARDIAL CALCIFICATION MIMICKING CONSTRICTIVE PERICARDITIS
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Objective: Constricitive pericarditis and restrictive cardiomyopathy differantiation could be challenging because of they share common clinical and pathophysiological features.
Methods: We describe the case of 58-year-old male in NYHA Class II-III functional status that suffering from fatique and exertional dyspnea for two years. Patient represented the classic clinical evidences of diastolic dysfunction due to compression of the heart according to the transthoracic echocardiography and thorax CT.
Results: He underwent to the operation for pericardiectomy but intraoperatively, grossly visible epicardial calcification wrapping both ventricles with morphological normal pericardium were seen. Laboratory and histopathologic examination did not reveal any infiltrative or storage diseases such as amyloidosis, hemochromatosis, glycogen deposition, hypereosinophilia, etc. or connective tissue disorders.
Conclusion: Patient was included into the heart tx waiting list and followed-up as an idiopathic restrictive cardiomyopathy for one year.

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ON-PUMP BEATING HEART MITRAL VALVE REPLACEMENT AND RF ABLATION IN PATIENTS WITH CHRONIC RENAL FAILURE
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Objective: Surgical treatment of atrial fibrillation by radiofrequency ablation becomes a standart procedure in addition to primary valvular or coronary surgery even in patients with chronic renal failure. Recently, some reports strongly recommend the beating heart surgery for valvular disease to prevent early postoperative reperfusion injury due to cardioplegic arrest.
Methods: We describe two cases with dialysis dependent renal failure having degenerative mitral valve insufficency and chronic atrial fibrillation.
Results: Both cases had severe pulmonary hypertension and moderate left ventricle dysfunction so we decided to perform mitral valve replacement and RF ablation during on-pump beating heart without using hemofiltration in order to eliminate hyperkalemia due to potassium enriched blood cardioplegia.
Conclusion: This report confirm the feasibility of this technique without myocardial damage as a surgical option especially in patients with renal failure.

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URGENT SURGICAL REVASCULARIZATION OF SPONTANEOUS CORONARY ARTERY DISSECTION IN TWO YOUNG MAN
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Objective: Spontaneous coronary artery dissection is a very rare cause of acute coronary syndrome leading to hemodynamic deterioration.
Methods: Two cases in third decade without any known cardiac risk factor presented with hemodynamic instability and signs of acute myocardial infarction. Dissection of the RCA extended to the posterior descending artery in one case and isolated dissection of the proximal segment in the LAD in another case were detected after emergency coronary angiogram. There were no any atherosclerotic lesions in the affected coronary artery nor in the other vessels.
Results: Both cases were treated with urgent coronary artery bypass surgery successfully.
Conclusion: An early clinical invasive diagnosis and attempt to the urgent aggressive treatments including coronary angioplasty with stent implantation or coronary bypass surgery should be considered at this unexpected clinical situation.

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LONG-TERM RESULTS OF PTCA IN PATIENTS WITH RECURRENCE OF ANGINA AFTER CORONARY BYPASS
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Objective: To evaluate the late results of PTCA in patients with recurrence of angina after coronary bypass surgery.
Methods: From 1996 to 2005 28 patients underwent PTCA due to recurrence of angina after previously made coronary bypass. Mean age of patients was 57.1±5.8 years (46–73 years), 92.8% (26) men, 7.2% (2) women. 4 (15%) patients had II functional class, 24 (85%) patients had III-IV functional class of angina. Average time of angina return after CABG was 4.7±0.9 years (6 months to 7 years). PTCA was performed in 6.8±1.3 years (6 months to 11 years) after CABG. In 26 (92.8%) patients PTCA with stenting, in 2 (7.2%) – PTCA without stenting was performed. According to the data of graft angiography, performed previous to PTCA, total number of aortocoronary grafts was 39, 13 (33.3%) of them were occluded, 5 (12.8%) had significant stenoses. Average revascularization index was 2.1±0.6. Twenty six patients underwent PTCA with stenting, 2 patients – PTCA without stent implantation. Total number of stents was 30. Twenty five stents (84%) were placed into native coronary arteries, 4 (12%) into aortocoronary grafts, 1 (4%) into a mammary artery graft. Nine of 30 stents (30%) were drug-eluted.
Results: Hospital mortality was 8% (2 patients, who underwent PTCA as a palliative procedure). The results were evaluated in 29.6±7.4 months after PTCA. Mortality was 3.5% (1 patient died of abdominal aorta rupture). Six (23%) of patients developed Q acute myocardial infarction, 5 (19%) – non -Q infarction. On early terms after PTCA 18 (86%) patients did not have angina, 3 (14%) had angina of I-II functional class. In the long-term period 23 patients (82%) had III-IV functional class, 5 (8%) - III class of angina.
Conclusion: PTCA can be used as a palliative procedure, however, it can be connected to a rather high risk. PTCA gives good early result and good survival rates in a long-term period. High percentage of angina return in the long-term period is probably connected with restenose development in the coronary arteries, diffuse coronary artery disease, and incomplete revascularization.

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REMOVAL OF A VENTRICULAR MITRAL VALVE FIBROELASTOMA BY AN AORTIC APPROACH

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Objective: Cardiac papillary fibroelastomas (CPFEs) are rare neoplasms usually incidentally found by echocardiography for unrelated problems.
Methods: We report the unusual case of a papillary fibroelastoma located on a mitral valve chorda presenting acute psychiatric symptoms as a consequence of cerebral embolism. The surgical excision was performed through an aortotomy with videoscopy used to help exposure and removal.
Results: A 55-year-old man, suffering from depression and loss of interest at work, unexplainedly ran away from work on two occasions, driving aimlessly and drinking until he was found without aforethought. Investigations found a right hypothalamic hole without any localized tumor via an MRI and a one centimeter diameter mobile mass on the ventricular side of the anterior mitral valve via a transesophageal echocardiography. Under cardiopulmonary bypass, an exploration was first performed through an aortotomy and the aortic valve with the help of a thoracoscope to ensure the mass nature and the possibility of its resection. It revealed a small myxoid mass attached to one anterior mitral valve chorda. Excision of the tumor and the chorda was performed using this same approach with thoracoscopic instruments. The patient was weaned from bypass without difficulty and intraoperative transesophageal echography showed no evidence of valvular regurgitation. Recovery from the operation was uneventful and the patient had no cardiac or neurological problems. The histological diagnosis was confirmed to be papillary fibroelastoma, with clear margins.
Conclusion: The potential for life-threatening complications of CPFEs, even asymptomatic ones, is an indication for their surgical excision whatever their size, as long as there are no major contraindications to the operation. Surgical excision must be total, and when the valvular tissue is involved, the valve should be preserved if possible. The exposure and the analyze of a mitral valve mass on its ventricular side and finally its resection can easily be performed through the aortic valve with the use of videoscopy.

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GIANT CELL MYOCARDITIS SUPPORTED BY ECMO SUCCESSFULLY BRIDGED TO TRANSPLANTATION

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Objective: Giant cell myocarditis (GCM) is a rare and fatal heart disease in young males.
Methods: We describe a successful management of an acute GCM heart failure.
Results: A 43-year-old previously healthy man was admitted in a general hospital with a 2-week history of breathlessness, fatigability and abdominal pain. He was first diagnosed for a cholecystitis and underwent a cholecystectomy. Postoperatively he presented unstable haemodynamics and respiratory failure and was therefore transferred to our hospital for diagnosis. An echocardiogram showed a globally hypokinetic heart and a left ventricular ejection fraction of 10% with a normal coronarography. He was diagnosed for acute heart failure initially stabilized by medical therapy which secondarily deteriorated to cardiogenic shock. After implantation of an extra-corporeal membrane oxygenation (ECMO), hemodynamic conditions were stable and peripheral organ function returned to normal range. However, no cardiac recovery was observed on day 4 while hepatic and renal functions began to deteriorate. Therefore it was decided to transplant the patient in emergency rather than bridge to another assist device. The histological diagnosis was confirmed to be GCM. No recurrence was diagnosed by biopsy at a nine-month follow-up after transplantation.
Conclusion: GCM is a rare and fatal disorder presenting as acute congestive heart failure. ECMO or mechanical heart assist devices can be safely used as a bridge to transplantation which remains a reliable therapy despite the risk of post-transplantation recurrence of GCM.

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TWO CASES OF PYODERMA GANGRAENOSUM AFTER CORONARY ARTERY BYPASS GRAFTING

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Objective: The Pyoderma Gangrenosum (PG) is a very uncommon and a potentially lethal disease with necrotic ulcerations. Even more uncommon is it's postoperative variation, the "progressive gangrene of Cullen". We report about two patients, who showed the typical signs of a PG, after a coronary artery bypass operation at our clinic.
Methods: The first patient was 71-year-old, had a three vessel disease and underwent coronary artery bypass operation in Off-Pump- technique. The second patient was 74-year-old and was reoperated for coronary artery bypass. His first operation was 7 years ago without any complications. ?? The primary postoperative care was in both cases eventless. On the 4th postoperative day the temperature rose up to 38 °C and there was an increase of the leukocytes and the C-reactive protein. Typical both patients showed on the 6th postoperative day necrotic ulcerations developed at the wound sites (saphenectomy, sternotomy). The ulcerations spread rapidly with a surrounding areola of erythema. All surgical intervention exacerbated symptoms and there was no regression under antibiotic therapy. After exclusion of all other possibilities, we finally diagnosed progressive gangrene of Cullen.
Results: A thorough therapy with corticosteroids was initiated and speedy recovery was noticed in both cases.
Conclusion: The PG is a potentially lethal disease with a mortality rate of approximately 30%. Accordingly, early diagnosis is very important. In the event of septic necrotic ulceration without any bacterial culture and with no recovery under antibiotics, the possibility of PG should be considered.

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INFANTILE CARDIAC EPITHELOID HEMOANGIOENDOTHELIOMA

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Objective: Primary cardiac tumors are very rare with an incidence of 0.0017 to 0.028% in reported series. Among them hemoangiomas constitute about 2.8% of all primary tumors of the heart. However cardiac occurrences of epitheloid hemoangioendothelioma (EHE) are exceptionally rare. To the best of our knowledge and one being presented by our clinic, only six cases of cardiac EHE have been previously reported in the literature. Here we report the two cases of EHE of the right atrium occurring in the infancy period.
Methods: The first patient was a 2 month old infant whose tumor was incidentally diagnosed during exploratory sternotomy for pericardial effusion after several pericardiocynthesis. The second patient was 3 month old baby who had been treated once for pericardial effusion and diagnosed a possible cardiac tumor preoperatively by echocardiography.
Results: In both cases an effort was made in order to excise the tumors completely by resecting the tumoral tissues on the right atrial wall, atrial septum and superior vena cava. The respective defects were reconstructed with pericardial patches. Postoperative course of the 1st patient was uneventful and discharged on the 8th postoperative day. Since the pericardial effusion was in chronic basis and the lungs were compressed the postoperative course of the second patient was mostly complicated with respiratory problems and she was weaned of ventilatory support in 28 days time and discharged on the 38th postoperative day. Both of the cases are followed periodically for any possibility of recurrence and until now no recurrence has been obbserved.
Conclusion: The behavior of these tumors varies from stopping growing and involution to sometimes proliferation. They are usually asymptomatic. Majority of them are diagnosed on autopsy studies. Most cases reported up to date usually died suddenly due to pericardial effusions and arrhythmias. Dyspnea on exertion, pseudoangina, dysfunctions of the atrioventricular valves, congestive heart failure, outflow tract obstructions, and failure to thrive may be the other symptoms. Only a few infants have been reported to have primary cardiac epitheloid hemoangioendothelioma and our cases are the youngest patients in the relevant literature.

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VACUUM-ASSISTED THERAPY FOR THE TREATMENT OF STERNAL WOUND INFECTIONS

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Objective: The VAC (vacuum-assisted closure) system is a non-invasive therapy based on the application of negative pressure by controlled suction to the wound surface. This method has been proved to be effective on the promotion of granulation tissue proliferation. The aim of the study was to evaluate the effectiveness of the vacuum-assisted therapy with a handcrafted system, because the commercialized one was not available in our Institution
Methods: Since July 2004, nine patients with sternal wound infection after cardiac surgery were treated with the vacuum-assisted theraphy system. Oakley´s classification was 2A in 7 patients and 2B in 2 patients. Bacterial cultures isolated Sthapylococus aureus in 3 patients, Staphylococus epidermidis in 4 patients, Haemophylus influenzae in 1 patient and Escherichia coli in 1 patient. All patients underwent surgical debridement under aseptic conditions, including removal of sternal wires in the patient with mediastinitis. Thereafter, a sterile sponge (Actibel-3M©) was cut and fitted into the sternal wound. A 19F (Blake© Ethicon, Inc.) drain tube was inserted into the sponge and connected to a vacuum source, with continuous negative pressure of 100-150 Hgmm. The open wound was sealed with a transparent adhesive drape (OpSite© Smith+Nephew) which overlapped the margins. Every 24 to 72, the vaccum-assisted system was changed and new material for bacterial cultures was routinely taken. The guidelines on which vacuum-assisted therapy removal was recommended were the resolution of local infection signs and negative bacteriological cultures.
Results: Complete healing with a tension-free wound direct closure could be achieved in all patients, Removal of the vacuum-assisted therapy system was done after a median of 15 days after surgery (the range of the treatment went from 8 to 47 days). All patients received intravenous antibiotics during vacuum-assisted treatment. The cultures became negative after a median of 7 days (range from 2 to 21 days).
Conclusion: We suggest that the vacuum-assisted therapy system is a valuable and effective tool in the management of patients with sternal wound infection after cardiac surgery. Our handcrafted system, based on the negative pressure principle, is a safe and easy option when the commercialized one is not available.

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OVER 14 YEARS EXPERIENCE ON CARDIAC MYXOMAS

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Objective: Atrial myxomas are the most commonly encountered tumours of the heart and can present at different ages with different clinical symptoms. They are one of the curable tumours of the heart with appropriate surgical treatment and their surgery must be performed with great precautions in order to prevent fatal sistemic embolisations. In this retrospective study we will present our 14 years experience between 1990 and 2004 on 27 patients who had been operated for cardiac myxomas.
Methods: Diagnosis of the myxomas were made by echocardiography in all cases. Surgical approach to the tumour was biatrial in nine, left atrial in 11, and transseptal in seven patients. Associated procedures included coronary artery bypass grafting in one, mitral valve repair with tricuspid annuloplasty in two, mitral valve replacement in one and bilateral femoral embolectomy in one patient.
Results: One hospital mortality occurred as a result of multiorgan failure in a patient with peripheral embolization. None of the patients required recurrent operation however, mitral valve insufficiency was surgically corrected in one patient.
Conclusion: Myxomas occur at different ages with various clinical sypmtoms. They must be excised as soon as they are diagnosed and maximum care must be taken during the procedure.

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CAROTID ENDOVASCULAR TREATMENT AS PREOPERATIVE PROTOCOL IN CORONARY SURGERY

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Objective: 1) View the incidence of significant carotid lesions in our patients awaiting coronary surgery; 2) Treat the carotid lesions with stenosis >70% implanting specific stents; 3) Demonstrate a lower incidence of ictus during the post-operative and follow-up periods.
Methods: From June 2004 to May 2005 we have routinely studied, as part of the pre-operative protocol for coronary patients, a total of 95 patients performing Magnetic resonance of the supraaortic root. We detected the carotid lesion and treated the patient with double anti-aggregation (300 mg of Acetylsalicylic acid + 75 mg of clopidogrel) for 5 days. A selective supra-aortic root arteriograph was performed on the 6th day, and a carotid Wallstent or Acculink stent was implanted. Two protection systems were used: the Spider and the Filter Wire Ez. After stent implantation the patient was treated with the same double anti-aggregation medication for a month. Controls were performed with Echo-Doppler of the carotid during the first week, at 1 and 6 months, at 1 year and once a year afterwards.
Results: Ten patients with significant carotid lesions were detected (>70%), 10.2% of incidence, 2 patients has related symptoms, 1 patient had bilateral lesions, 2 patients could not be treated preoperatively due to urgency of the coronary surgery. Stents were placed in 11 carotid lesions, without any complications. No patient has presented ictus post-operatively. No restenosis or neurological complications have appeared during follow-up at one year.
Conclusion: The endovascular treatment of significant carotid stenosis, symptomatic or asymptomatic is a procedure, with little aggression, for patients with an important associated morbidity, with scant immediate complications and we have not detected any restenosis in the first year follow-up.

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BAX DEFICIENCY REDUCES INFARCT SIZE AND IMPROVES LONG-TERM FUNCTION AFTER MYOCARDIAL INFARCTION

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Objective: We have previously found that isolated hearts from knockout mice for bax gene exhibited higher cardioprotection than wild type, following myocardial ischemia/reperfusion injury. In this study we explored the effect of the bax knockout gene following myocardial infarction (MI) in vivo.
Methods: Two groups of mice were studied: homozygotic knockout mice lacking the bax gene, Bax (-/-) and matched wild type Bax (+/+). Mice underwent surgical ligation of the left anterior descending coronary artery (LAD). Echocardiography was performed before surgery and at one day or four weeks after the induction of infarction. Left ventricular end diastolic diameter, end systolic diameter and fractional shortening (LVEDd, LVESd, FS), infarct size and serum CK and LDH, caspase 3 activity were measured.
Results: Post infarct mortality was about 25% in both groups four weeks post MI. The progressive increase in LVEDd and LVESd in Bax (-/-) group was significantly smaller when compared to Bax (+/+) group at 28 days following MI (P<0.03). Concomitantly, FS was higher in the Bax (-/-) group (35±4.1% and. 27±2.5%, P<0.001. Infarct size was smaller in the Bax (-/-) compared to the wild type at 28 days following MI (24±3.7% and 37±3.3%, P<0.001). Lower CK and LDH release in serum were found in the Bax (-/-) compared to Bax (+/+), 24 h following MI. Caspase 3 activity was elevated at 2 h after MI only in the wild type, but reduced to baseline values at 1 and at 28 days post MI.
Conclusion: Hearts of Bax knockout mice demonstrated smaller infarct size and better myocardial function following permanent coronary artery occlusion. The Bax gene and its intracellular mechanisms should be further investigated since it appears to play a significant role in the post MI response.

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EARLY AND LONG-TERM OUTCOME IN PATIENTS FOLLOWING STERNAL WOUND INFECTION: A 5-YEAR FOLLOW-UP STUDY

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Objective: Analysis of short and long-term impact of sternal wound infection (SWI) on survival in patients following cardiac surgery.
Methods: Prospectively collected data were extracted for 146 patients among all patients operated from 1996 to 2004. Follow-up was 100% complete. Univariate analysis was used to determine prognostic variables for early and late mortality.
Results: Out of 5.897 cardiac procedures, 146 SWI were documented (2.4%). Superficial SWI and deep SWI were present in 36 (0.6%) and 110 patients (1.8%). The 90-day mortality for superficial and deep SWI patients were 5.5% and 14.5% respectively (P<0.0001). The 5-year survival rate was 72.7%. In univariate analysis, prognostic factors for early and late mortality were chronic renal failure (OR 9.5), peripheral vascular disease (OR 4.9), congestive heart failure (OR 2.6), ICU stay >72 h (OR 3.5), need for reexploration (OR 2.5) and perioperative stroke/TIA (OR 2.8) whereas unilateral ITA use had a protective effect (OR 0.2). Redo-procedures and positive blood culture were significant risk factors for early death only (OR 2.7 and 2.3, respectively) whereas COPD was a risk factor for late mortality (OR 2.8). Interestingly, the magnitude of sternal resection had no impact on long term survival for the 90-d survivors in whom the 5-year survival was 83.5%.
Conclusion: A simple approach of closed drainage combined with vascularized flaps resulted in satisfactory short-term results. The prognostic factors for late mortality are similar to uninfected patients. After successful resolution of infection, long term survival is excellent and is not jeopardized by the extent of resection.

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RESULTS OF CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH ACUTE CORONARY SYNDROME

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Objective: For the first time the efficiency of coronary artery bypass grafting (CABG) vs. drug therapy in patients with acute coronary syndrome has been shown in several randomized trial. There is no significant data about benefit of coronary angioplasty or CABG in treatment of coronary heart disease against a background of unstable angina. However, in patients with left main stem or 3 vessels disease, the opportunity to perform complete revascularization during CABG seems to be more preferable. We describe the surgical results of this high-risk patient.
Methods: Between January 2000 and May 2003, 72 patients with acute coronary syndrome were operated. There were 65 (90%) males, 7 (10%) females with mean age 56.9±9.1 years (range 29–74 years). Eight patients had a clinic of unstable (progressive) angina, 64 patients had early severe angina after ST or Not-ST elevation myocardial infarction. 59 (82%) patients had a history of 1 to 4 myocardial infarctions (mean 1.64±0.91), that has caused low left ventricle ejection fraction (LVEF). Mean LVEF was 56.4±11.2%. In 30 (42%) patients LVEF was <50% and in 7 (10%) patients <40%. The indications for urgent CABG were the following: high functional class of angina against a background of massive antianginal therapy, multivessel critical coronary lesions and a hopelessness of coronary angioplasty.
Results: Average time of stay in intensive care unit was 2.43±0.27 days, time of ventilation – 6.95±0.43 h. Low cardiac output syndrome (LCOS) was diagnosed in 49 (68%). Intra aortic balloon pumping was used in 7 patients (10%/14%). In group with LCOS the majority of patients were operated in the first day after myocardial infarction and LVEF was <40%. Intraoperation myocardial infarction or the expansion of a risk zone was diagnosed in 4 (5%) patients, however, decrease of LVEF was not noted in the early postoperative period (LVEF = 55.10±10.81%). Three (4%) patients have died during first 30 days after operation. The reason of death was LCOS in 2 patients and stroke in 1 patient.
Conclusion: CABG can be used as an effective and safe method of treatment in patients with multivessel disease. However, the need of circulatory support in this group of patients is significantly higher, especially in patients with low LVEF operated in first day after myocardial infarction.

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CONTINOUS CORONARY PERFUSION FOR VALVE CASES WITH SEVERE LV DYSFUNCTION

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Objective: Sixty-seven Patients with severe LV Dysfunction with valvular heart disease (31 MVRs/6 OMVs/16 AVRs/14 DVRs) were operated using continuous coronary perfusion with Oxygenated blood from the Oxygenator over period of Two years. There were 41 males and 26 females aged between 36 to 56 years. Their LVEF ranged between 35 to 40%. The follow up period was between 6 months to 1 year. There were no major complications attributable to the method used - Mortality, air embolism. Follow-up was done using 2D echo (at 3, 6.9th postoperative months).
Methods: GA with midline sternotomy was used. Aortic cannulation/Bicaval cannulation used in majority of the cases except for AVR were two staged venous cannula utilized (Sarns, Calmed – USA). Membrane oxygenator (Dideco, Polystan) were used in all the cases. After cross clamp applied oxygenator blood was given into Aortic route in cases undergoing MVR/OMV, retrograde coronary perfusion was used in patient undergoing AVR/DVR. Oxygenated blood was given at flows between 250 to 300 ml/min. Starr Edwards valve (MVR), Carbomedics for AVR were used. After the procedure was completed the chamber closed and deairing achieved via aortic root vent. All cases were ventilated for 3 – 6 h. The ICU stay was between 36 to 48 h. Four patients were reopened for bleeding. All patients required ionotropic support (Dopamine and Adrenaline).
Results: There was no mortality attributable to the method used. One patient died at the end of 6 months due to non-compliance of medications. This method bypasses cooling, rewarming, reperfusion time and injury. Patients undergoing Valvular heart surgery with EF below 40% carry a high mortality due to ventricular dilatation and PAH. Routine blood cardioplegia and stopping the heart carries its own risks and complications. This can be bypassed by the above method.
Conclusion: This method of surgery in patients with LV dysfunction is a viable and physiological method producing good result. Patients with Valvular heart disease who are otherwise carrying the high mortality due to sever LV dysfunction can be operated by the above procedure.

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RESULTS OF SURGICAL TREATMENT OF THE LAUBRY-PEZZI SYNDROME

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Objective: The Laubry-Pezzi syndrome (VSD associated with aortic valve incompetence) represents 2 to 12% of all VSD. Despite much advance in

treatment of the syndrome, diagnosis and surgery for this lesion has been remaining a challenge in congenital heart surgery. Our purpose was to evaluate efficacy of surgical treatment (aortic valve (AV) repair and replacement) of the Laubry-Pezzi syndrome.
Methods: Thirty-six patients with the Laubry-Pezzi syndrome were operated on at the clinic. The patients' age ranged from 3.5 to 42 years (mean 15.5 + 7.86). Twenty-five patients were males, 11 were females (2.3:1 ratio). ?? According to the type of surgical treatment, patients were divided into 3 groups: 1) VSD closure and AV repair (22 pts), 2) VSD closure and AV replacement (9 pts), 3) VSD closure only (5 pts). Closure of VSD only was performed in 5 patients with aortic regurgitation of the 1st degree. Aortic valve repair included commissures plication (11 pts), plasty by Trusler (9 pts), Hisatomi (3 pts), Spencer (2 pts), sinus of Valsalva's aneurism suturing (4 pts) and combination of several methods (7 pts). Enddiastolic volume (EDV LV) and end-diastolic dimension (EDD LV) of the left ventricle calculated to the body surface area were assessed in all patients before and after the operation.
Results: Mortality in our series was 8.6% after AV repair (2 cases) and 11.1% after AV replacement (1 case). There were no mortal cases in the VSD closure group. In early postoperative period, patients after AV repair demonstrated decrease in EDV LV and EDD LV from 185.20+ 63.39 ml to 116.45+72.02 ml and from 5.51+1.34 cm to 4.59+1.26 cm respectively. Patients in AV replacement group demonstrated reduce of EDV LV and EDD LV from 205.92+63.36 ml to 157.19+57.97 ml and from 4.89+0.97 cm to 4.35+1.02 cm respectively. Residual aortic regurgitation in the 1st group of patients was minimal or of the 1st degree. Of 9 patients of the 2nd group, two (9.1%) underwent AV mechanical prosthesing because of failure after initial repair of the AV.
Conclusion: Aortic valve repair can be used in children without severe changes in the AV (insufficiency of 1st-2nd degree). Commissural plication, AV repair by Trusler and Hisatomi provide excellent results with minimal residual aortic regurgitation. AV replacement remains a firm indication for patients with 3rd degree AV incompetence, indexed EDV LV>200 ml/m^2 and EDD LV >5 cm/m^2.

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A ONE-STOP HYBRID BEATING HEART SURGERY FOR THE MANAGEMENT OF CONGENITAL HEART DISEASE

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Objective: Catheter-based devices have been widely applied to treat congenital heart disease by percutaneous approach. We reported a intraoperative hybrid surgery which integrated the device and surgical approach in the beating heart to treat neonatal pulmonary atresia with intact ventricular septum and ASD with associated heart disease.
Methods: From March to November 2005, consecutive 9 patients received hybrid surgery in a single heart center. Two groups were identified: pulmonary atresia with intact ventricular septum (*n* = 4, age=1 - 30 days, weight=3-4 Kg) and ASD group (*n* = 5, age = 6-68 years, weight = 23-78 Kg). The associated heart disease in ASD group included multiple-vessel coronary artery disease (*n* = 3), anomalous origin of right coronary from main pulmonary artery (*n* = 1) and partial anomalous pulmonary venous connection (*n* = 1). Mini-median sternotomy was utilized except the utilization of subaxillary miniincision for one child with ASD and partial anomalous right pulmonary venous connection. All the procedures were guided by the real-time epicardiac or transesophageal echocardiography. In pulmonary atresia group, the atretic pulmonary valve was perforated and balloon was inserted by perventricular approach. The modified Blalock-Taussig shunt was added and PDA was ligated after successful balloon valvuloplasty. ASD were closed with the occluder by peratrial approach, and then the associated heart disease was treated separately by off-pump CABG, relocation of anomalous coronary artery or right pulmonary venous. The outcomes were evaluated by the echocardiography during follow-up.
Results: It took 2-3 times to perform perventricular valve dilation with differnent size balloons until satisfied trans-pulmonary valve pressure gradient was achieved. Average time of balloon valvuloplasty was 23 min. The closure time of ASD was 11 min averagelly, and no blood transperfusion was needed in ASD group. All the patients discharged eventually. During follow-up (1–8 months), no devices-related complications were observed in ASD group. The neonates with pulmonary atresia regained the growth of right ventricle and no obvious pulmonary restenosis was observed.
Conclusion: Our results showed the hybrid beating heart surgery was safe and effective for selected patients with congenital heart disease. There were no vascular-access and weight limit to use the devices while opening the chest. The extensive use of intraoperative device and real-time imaging outfits offered a novel one-stop platform for the cardiac surgeon to avoid cadiopulmonary bypass, minimize the trauma and thus could improve the outcomes of the management of congenital heart disease.

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ASSOCIATION BETWEEN ANGIOTENSIN-CONVERTING ENZYME GENE POLYMORPHISM AND THE SEVERITY OF CORONARY ATHEROSCLEROSIS

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Objective: To investigate the relation between the angiotensin-converting enzyme (ACE) gene polymorphism and severity of coronary atherosclerosis, we analyzed the association of genotype with the coronary angiography findings of patients with coronary artery disease (CAD).
Methods: We determined the ACE genotype in 102 Russian patients with CAD and 112 healthy individuals. The genotype distributions were not different between two groups (*P* = 0.48; Chi-square test). In the first group, coronary angiograms were evaluated by criteria based on the number of stenotic lesions (?60%), the priority level of lesion (proximal or distal) and the type of lesion (diffuse or discrete).
Results: We failed to determined any significant differences between patients with DD and combined ID or II genotypes based on the priority level of coronary artery lesion (*P* = 0.285). Although the occurence of diffuse coronary artery lesion was higher among patients with the DD genotype than in those with the ID or II, the differences did not reach the level of significance. There were significant differences in the number of stenotic vessels among groups of patients with DD or II and ID genotypes (*P* = 0.043) with prevalence of three vessel lesion in patients with the DD genotype. Having divided all patients on two groups with single and three vessels lesion we found that patients with the DD genotype significantly more frequently had three vessels lesion than those with the ID or II genotypes (48% vs. 21.9%, respectively; *P* = 0.023).
Conclusion: The results indicate the influence of ACE gene polymorphism on severity of coronary atherosclerosis, based on this data we may propose that CAD patients with the DD genotype have more extended coronary atherosclerosis in comparison with patients having ID or II genotypes.

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AORTIC VALVE REPLACEMENT AFTER PREVIOUS CORONARY ARTERY BYPASS GRAFTING: INCIDENCE AND SURGICAL CONSIDERATIONS

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Objective: to replace the aortic valve in patients with mild to moderate aortic stenosis undergoing scheduled coronary artery bypass grafting (CABG) is still controversial. We evaluated the risk of the redo-operation in this group of patients.
Methods: From January 1, 2003 until June 30, 2005, 287 aortic valve replacements were performed in our institution. Among those 18 patients underwent aortic valve replacement after previous coronary artery bypass grafting. ?? ?? The mean age of the patients at the time of the redo was 70 years (62-82 yrs), 15 patients were male and 3 female. The mean interval between the 1st and 2nd operation was 6.7 years (1 - 12 yrs). In ten patients the internal thoracic artery had been used and was patent. The indication for the redo-operation for aortic valve replacement now was symptomatic aortic valve stenosis with valvular gradients between 50 and 107 mmHg. 13 patients received biological and 5 pts mechanical valve prostheses. Two patients received additionally CABG. The mean time of the operation was 268 min, the mean bypass time was 142 min, the mean X-clamp time was 64 min.
Results: Our operation-strategy followed the KIS-principle: after heparinization we canulated both femoral vessels using the Seldinger technique. Resternotomy was carried out with an oscillating saw. We dissected only the area around the ascending aorta and the right atrium, to X-clamp and to

perform an aortotomy and to insert a catheter for retrograde cardioplegia and an LV vent. The anterior aspect of the heart and the left side, in which the internal thoracic artery was embedded and patent was left alone, untouched and not clamped. Mild hypothermia (32 °C) was induced and blood cardioplegia was given. One pt died because of sever heart failure. All other pts had an absolutely uneventful postoperative course.
Conclusion: We believe, that the indication for aortic valve replacement in pts scheduled for CABG has to be re-evaluated. In those pts, in which redo-surgery for new or increased valve stenosis is indicated, a simple and safe surgical option is presented.

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THE EVALUATION OF PRE- AND POST-OPERATIVE CONDITION BASED ON AUTONOMIC NERVE FUNCTION CALCULATED FROM HEART RATE VARIABILITY
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Objective: We have argued that the cumulative parasympathetic nerve system (PNS) activity per day calculated from heart rate variability is an indicator of the reserved force available for recovery from surgical stress. In this study, we investigated the recovery process after off-pump aort-coronary bypass surgery by the cumulative PNS activity per day.
Methods: Sixty patients undergoing off-pump aort-coronary bypass were studied. The R-R period of all heart beats over 24 h were analyzed in mS units and time series data of R-R periods over 24 h were continuously divided into 10-min periods intervals. From time series data of each 10-min intervals, we calculated the PNS function by the coarse graining spectral analysis method and defined that calculated PNS function as the average value of PNS function during relevant period. All 10-minute values for PNS function were accumulated over 24 h and the 24 hour values was calculated, these defined as the cumulative PNS activity per day. Progression of the cumulative PNS activity per day was followed postoperatively.
Results: Mean patient age was 65.5±9.7 and mean postoperative follow-up periods was 4.8±2.0 days. The results of comparing cumulative PNS activity per day between pre- and post-operative periods showed significant difference (P<0.008) with lower values being recognized in the postoperative period (5.8±4.1) compared to those in the preoperative period (7.6±2.3). The progression of cumulative PNS activity per day during pre- and post -operative periods was minimal (4.6±3.9) on postoperative 3 days. After the third day, the cumulative PNS activity per day gradually increased to 8.0±6.2, then recovered to the preoperative value after seventh day.
Conclusion: In this study, the cumulative PNS activity per day during postoperative period was lower than in that in the preoperative period, even following less invasive off-pump aort-coronary bypass surgery. This finding showed that surgical stress was significant and on third postoperative day, patient condition was worst. After this period, patient condition recovered gradually and finally after 7 days, the condition reached the preoperative level. Therefore, management of postoperative patients must be carefully monitored at least 7 days, even when they appear to be recovering well.

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OFF PUMP BYPASS GRAFTING OF POSTEROLATERAL LEFT VENTRICLE WALL CORONARY ARTERIES USING THE VACUUM STABILISER
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Objective: To evaluate an opportunity of OPCAB for the rear-lateral left ventricle wall coronary arteries using the vacuum stabilizer.
Methods: Two hundred and one patients from 2002 to 2005 underwent OPCAB surgery. CTS OPCABTM Access PlusTM System with deep traction sutures in the posterior pericardium in 148 (73.6%) patients (group 1) and GUIDANT AxiusTM XposeTM Device with the vacuum stabilizer of the heart top in 53 (26.4%) patients (group 2, control) were used for exposing of the distal coronary targets. Mean age of patients was 55.3±3.1 and 54.2±2.3 years accordingly. Most of patients in both groups had severe angina symptoms, mean quantity of myocardial infarctions was 1.32±0.72 in group 1, 1.37±0.52 in group 2, mean LVEF 0.60±0.1 (0.58±0.1 in group 2), accompanying diseases were present in 125 (84.3%) patients in group 1, 43 (81.2%) in group 2 (P > 0.05). Identical techniques of anesthesia were used in both groups.
Results: There was no hospital mortality. Time of surgery was 205±48 min in group 1, 212±43 min in group 2. During operation the conversion to cardiopulmonary bypass surgery was made in 7 (4.73%) patients of group 1 and in 2 patients (3.8%) in group 2. The average number of grafts was 1.75±0.62 in group 1 and 2.93±0.47 in group 2 (P<0.05). Only for 5 (3.4%) patients of group 1 in was possible to reach the circumflex artery on the rear wall of the left ventricle (in group 2 for 16 (30.2%) patients). During heart fixation with the vacuum stabilizer, mean systolic arterial pressure for group 2 was 72.4±0.5 mmHg, PA pressure -18.4±0.2 mmHg, heart index 2.7±0.1 l/min/m^2. 9 (6.1%) patients of group 1 and 3 (5.6%) patients of group 2 developed low cardiac output syndrome. Time of mechanical ventilation was 5.6±1.9 and 5.2±1.3 h accordingly. ICU time was 1.4±0.6 and 1.7±0.8 days accordingly.
Conclusion: Use of the vacuum stabilizer of the heart allows increasing the amount of OPCAB procedures due to patients, who require the revascularization of the LV rear wall. During heart fixation adequate hemodynamic parameters stay stable, allowing to perform the distal anastomoses with the branches of a circumflex artery.

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RESULTS OF INTERNAL MAMMARY AND RADIAL ARTERY USE FOR CORONARY BYPASS
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Objective: Analysis of CABG results with use of internal mammary and radial arteries.
Methods: From 1997 to 2004 884 patients underwent CABG with use of radial artery in a combination with internal thoracic artery. Mean age of patients was 56.5±7.6 years (from 32 to 81 years), 90.2% men. Seven hundred and sixty (86%) patients had III-IV functional class of angina, 619 (70%) had 1 myocardial infarction, and 203 (23%) - 2 and more infarctions. In 186 (21%) patients LVEF was less than 0.5. The indications for radial artery use were: necessity for 2 and more grafts, satisfactory Allen test, and satisfactory ultrasonic radial artery test. Average time of harvesting was 56.4±12.8 (44-68) min. Average clamp time was 66.8±19.8 (47-85) min, mean cardiopulmonary bypass time -108.6±32.1 (76-140) min. Mean number of grafts was 3.1±0.7 (2-5).
Results: Twenty-nine patients (3.3%) developed myocardial infarction on the 1st day after surgery. Hospital mortality was 1.38%. Eight patients died of low cardiac output syndrome, 2 of neurological complications, 1 of arrhythmia, and 1 from bleeding. Long-term results were analyzed in 80 patients. Average time of follow-up was 5.8 (5–7) years. Total survival was 97.5% (78 patients). One patient has died of myocardial infarction, the death of another was not connected to a cardiovascular pathology, 54 patients (67.5%) have no angina, 16 (20%) have I-II functional class of angina, 8 (10%) patients returned to the pre-operative angina functional class. Ischemic ECG changes were marked in 17% patients. Graft angiogram was performed in 55 patients; radial artery graft was functioning in 47 patients (90%). There were no cases of palm ischemia after radial artery harvesting.
Conclusion: Radial artery use in CABG provides good early and long term results, according to the clinical and angiographic data.

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LONG-TERM RESULTS OF CABG REOPERATIONS IN PATIENTS WITH RECURRENCE OF ANGINA
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Objective: To evaluate the late results of CABG reoperations in patients with recurrence of angina after coronary bypass surgery.
Methods: From 1996 to 2005, 21 patients underwent CABG reoperation for recurrence of angina after coronary bypass. Age of patients was 58.8±4.8 years (42–68 years), 95% (20) men, 5%(1) women. Initially all patients had severe angina of III-IV functional class. 6 (30%) patients had a myocardial infarction after initial CABG. Time of angina return after CABG was 6.1±0.9 years (3 months to 9 years), reoperation was performed in 7.8±1.3 years (from 4 months to 19 years) after the first CABG. According to the angiographic data, in 13 (62%) patients all grafts were occluded, 3 (14%) patients had significant stenoses in the grafts, and in 5 (24%) patients new significant

stenoses in coronary arteries had developed. In 7 (33%) patients we used cold blood cardioplegia, in 8 (38%) -crystalloid cardioplegia, 1 operation (5%) was performed under electric fibrillation, 5 (24%) under parallel blood circulation. In 5 (24%) patients number of grafts was 1, in 8 (38%) - 2, in 7 (33%) - 3, and in 1 (5%) - 4. The total number of grafts in all patients was 43. Average revascularization index was 2.1±0.8. The left mammary artery was used in 14 (71%) patients, radial artery in 9 (43%), vein in 20 (95%) patients.
Results: Hospital mortality was 9.5% (2 patients). Long-term results of reoperation were evaluated in terms from 3 months to 9 years (43.3±6.4 months). In long-term postoperative period 2 patients (9.5%) died (one died of myocardial infarction, 1 death was not connected with cardiovascular pathology). In the long term period 6 (28%) patients developed myocardial infarction. In 1 patient (4.7%) coronary angioplasty with stenting was performed. After surgery 19 patients had no angina before discharging from the hospital. In long term period 7 (41%) patients have no angina, 10 patients have recurrent angina in 27.3±8.1 months after reoperation. 5 patients (24.5%) have I-II functional class of angina, 5 (24.5%) have III-IV class.
Conclusion: Long-term results of CABG reoperations show, that in spite of higher risk, survival rate and clinical efficiency are comparable to those at initial CABG. Frequency of angina recurrence after CABG reoperations is significant and it demands improvement of surgical techniques along with active secondary preventive maintenance of atherosclerosis.

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IS THE MITRAL PROSTHETIC VALVE AREA INDEX A PREDICTOR OF PEAK TRANSMITRAL GRADIENT AFTER VALVE REPLACEMENT?

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Objective: To estimate correlation between area index of MedEng mitral prosthetic valve and postoperative transmitral peak gradient.
Methods: Two hundred and two patients underwent mitral valve replacement in 1995–2005. Mean age was 51.3±11.5 years - 67.8% women. The valve area index (cm^2/m^2) was calculated as a relation of valve area (given by the manufacturer) to body surface. Mean body surface was 1.75±0.17 m^2 (1.35-2.18), mean valve area index - 2.58±0.26 cm^2/m^2 (2.09-3.37). Patients were divided into 5 groups: 30 patients with area index <2.3 cm^2/m^2 (group 1), 62 with area index 2.3-2.55 cm^2/m^2 (group 2), 65 patients with area index 2.55-2.8 cm^2/m^2 (group 3), 45 patients with area index >2.8 cm^2/m^2 (group 4); group 5 consisted of patients with area index >2.3 cm^2/m^2. We also allocated 2 groups according to the valve size: 24 patients with 27 mm valve (group A - 11.9%) and 178 patients with 29 or 31 mm valve (group B - 88.1%).
Results: Body surface was distinctively smaller in group A (?<0.05), difference in peak transmitral gradient level was doubtful (?>0.05). Gradient after surgery was higher in group 1, than in group 5 (? < 0.05). In group 2 the gradient was higher (?<0.05), than in group 4. Differences between other groups on the gradient value were doubtful (?>0.05). The one-mean correlation analysis between area index and peak transmitral in the common group has revealed reverse weak (r = –0.25) statistically significant (?<0.001) correlation. The similar analysis among patients of group 1 revealed reverse moderate (r = –0.4) statistically significant (?<0.05) correlation. The dispersion analysis shown that number of patients in group 1 was insufficient for a distinctive dependence model of peak transmitral gradient from the valve area index. One-factor correlation analysis in groups 1 and did not reveal any significant correlation.
Conclusion: Without taking body surface under consideration we failed to estimate a risk group for high transmitral gradient after valve replacement. The area index (for MedEng valve at values less than 2.3 cm^2/m^2) can be a predictor of a peak transmitral gradient. The index more than 2.3 cm^2/m^2 does not influence postoperative peak gradient. It is necessary to determine a prosthetic mitral valve area index critical value, under which the use of extraannular or reducing flow obstruction models of valves is necessary.

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HOW IS THE PATIENTS' QUALITY OF LIFE INFLUENCED BY PULMONARY HYPERTENSION IN LONG TERMS AFTER MITRAL VALVE SURGERY?

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Objective: Analysis of long-term results and quality of life in patients with and without pulmonary hypertension after mitral valve surgery.
Methods: We studied 67 patients with pulmonary hypertension (=35% from blood pressure), undergoing mitral valve surgery postoperatively (5 months to 11 years, mean time of follow-up - 4.6 years). The control group, comparable with the main group, consisted of 46 patients without pulmonary hypertension. Survival rates, freedom from severe heart failure and atrial fibrillation were evaluated by Kaplan-Mayer method. Evaluation of quality of life was performed with MOS SF-36 questionnaire (Russian version). Significance of differences in quality of life was evaluated with Mann -Whitney non-parametric U-criterion, and was compared with mean population values for Russian Federation. 77.6% of patients underwent mitral valve replacement, 4.5% underwent replacement of the prosthetic mitral valve, 17.9 - mitral valve repair. As additional procedures in 20.9% cases tricuspid valve repair and in 9% - CABG were performed.
Results: 12 patients died in long-term period, 1.1-9.6 years after surgery. 10-year survival rate in the main group was 63.4%, in the control group - 68.9%. 5-year freedom from severe heart failure for patients with pulmonary hypertension was 80.7%. 10-year - 54.6%, in the control group - 90% and 60.4% accordingly. Five-year freedom from atrial fibrillation in the main group was 50.5%, in the control group - 80.2%. Quality of life analysis in patients with pulmonary hypertension provided evidence of low physical and psychological health components, but comparing with the control group did not reveal any significant difference.
Conclusion: No significant difference in survival rate between patients with or without pulmonary hypertension, undergoing mitral valve surgery, was revealed. A tendency is seen to a greater severe heart insufficiency appearance in patients with pulmonary hypertension, without any significant difference. A significantly higher frequency of atrial fibrillation in long-term period is revealed in patients with pulmonary hypertension, who had sinus rhythm after surgery. Pulmonary hypertension does not influence the quality of life on long terms after mitral valve surgery. The study shows that it is possible to expand indications for mitral valve surgery in patients with pulmonary hypertension.

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DEVELOPMENT OF AORTIC AND TRICUSPID VALVE DYSFUNCTION IN PATIENTS WITH MYXOMATOUS DISEASE AFTER MITRAL VALVE SURGERY

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Objective: To determine a possibility of aortic and tricuspid valve significant dysfunction development in patients who undergone surgery for degenerative mitral insufficiency in comparison with patients after other etiology mitral valve insufficiency correction.
Methods: Echocardiography data was analyzed in 54 patients in terms from 5 months to 12 years (4.9±3.3) after surgical correction of mitral insufficiency caused by myxomatous disease (group 1). Mean age of patients – 53.2±11.2 years, 64.8% men. Mitral regurgitation of III grade was presented in 85.2% patients before surgery, mean class of heart insufficiency was 3.2±0.52 (NYHA), mean PA pressure - 50.3±19.3 mmHg. Mean LV size was 64.9±7.9/ 43.3±8.1 mm, average size of left atrium - 55.7±9.1 mm, LVEF - 0.63±0.11. 70.4% of patients undergone mitral valve replacement, 29.6% -mitral valve repair. As additional procedures in 24.1% patients tricuspid valve repair was performed, 7.4% patients undergone CABG. Control group (group 2) consisted of 43 patients with rheumatic heart disease and 7 patients with endocarditis (remission phase).
Results: In long term period 3 patients in group 1 and 1 patient in group 2 died of progressing heart insufficiency. In 51.9% patients in group 1 development of significant aortic insufficiency (from 0 and I grade up to =II and III grade accordingly), in 57.4% - significant tricuspid insufficiency (from 0 and I up to =II and =III grade accordingly) was marked. In patients with endocarditis no significant changes in aortic and tricuspid valves were marked. In group 2 significant increase of aortic insufficiency (always combined with moderate stenosis) was revealed in 7%, and significant increase of tricuspid insufficiency - in 23.3% patients (in 3 cases combined with tricuspid stenosis). Five-year freedom from aortic insufficiency progress in group 1 was 65%, 10-year - 23%, in group 2 - 100% and 92% accordingly. Freedom from tricuspid insufficiency progress in 5 and 10 years after surgery was 57% and 22% in group 1, in group 2 - 94% and 64% accordingly.
Conclusion: In patients with myxomatous valve disease development of aortic and tricuspid insufficiency is possible in long terms after surgery, which is connected with involving of all heart valves into the pathological process.

Patients with myxomatous disease should pass frequent echocardiographical control during all subsequent life.

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COMPARISON OF REPAIR TECHNIQUES FOR MITRAL VALVE PROLARSE

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Objective: To compare the results of mitral valve repair with or without ring implanting for mitral regurgitation caused by prolapse.
Methods: Between January 1995 and December 2004, 40 patients with isolated mitral regurgitation due to prolapse underwent mitral valve reconstruction. There were 19 men and 21 women whose mean age was 49.5±9.27 years, ranging from 28 to 70 years. Follow-up was 85% complete and totaled 119.68 patient-years (mean: 3.74 years). We used several types of techniques: (1) rear leaflet resection in 21 patients; (2) artificial chordal replacement or chordal shortening in 12 patients; (3) sliding plasty in 4 patients; (4) Batista technique in 3 patients; (5) Alfieri technique in 2 patients. In order to repair the annular dilation, ring prostheses were implanted in 23 patients (group 1). The group without ring implanting (group 2) consisted of 17 patients.
Results: Mean bypass time was 130.15±27.79 min in group 1 and 104.8±39.67 min in group 2 (P>0.05). Average clamp time was 94.35±24.23 min in group 1 and 73.76±34.48 min in group 2 (P>0.05). There were no hospital and late deaths. There were 2 mitral valve replacements (5.8 - 1% reoperation in group 1 and 2) for recurrent mitral incompetence with a total freedom from reoperation of 86.7% at five years. Percentage of reoperation was 4.3% in group 1 and 5.8% in group 2. There was one case of thromboembolism (non-fatal) in group 2 (5.8%) in a patient who underwent reoperation with total freedom from thromboembolism of 86.7% at five years. No endocarditis or hemorrhagic complications were noted. Linearized incidence of recurrent mitral regurgitation according to repair technique for the prolapse was 1.23%/patient-year in the ring annuloplasty series, 2.24%/patient-year in the series without ring annuloplasty.
Conclusion: No statistically significant difference between the groups was confirmed. A larger group of patients is required to estimate the benefits of each mitral reconstruction type. Nevertheless, a low incidence of reoperation and thromboembolic complications was revealed.

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10-YEAR EXPERIENCE OF RUSSIAN BICUSPID MEDENG MITRAL PROSTHETIC VALVE USING (EARLY AND LONG-TERM RESULTS)

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Objective: evaluating of early and late results of MedEng bicuspid mechanic mitral valve implantation.
Methods: Between 1995 and 2005, 264 MedEng 2-leaflet mechanic valves were implanted into mitral position. Mean age of patients was 51, 5±11.7 years; 35.2% men. Twenty-seven size valve was used in 29 (10.9%) patients, 29 - in 107 (40.4%), 31 - in 129 (48.7%). At 59 (22.3%) the rear leaflet chordae were preserved. In the control group 15 St. Jude, 24 ATS Med and 14 Carbomedics valves were implanted. Follow-up was made in 101 (40.4%) patients and in 19 (38.8%) in control group. Average term of follow-up was 4.1±2.9 years (3.8 months - 9.8 years, 409 patient-years), 5.1±2.2 years in the control group; ?> 0.05.
Results: Hospital mortality was 5.3% (7.5% in the control group); ?>0.05. After surgery the reduction of LV diastolic diameter and volume (P<0.001), systolic volume (P<0.001), left atrium (P<0.001), right ventricle (P<0.001), LVEF (P<0.001), pulmonary artery pressure (P<0.001); increase of LV systolic diameter and volume (P<0.001) were marked. Peak gradient on the prosthesis was 11.5±3.4 mmHg, mean 4.5±1.4 mmHg. In the control group the peak gradient was 10.2±4.4 mmHg (P<0.05). The survival rate, freedom from thromboembolism and reoperation were 98%, 95.9% and 99% after 1 year follow-up, in 3 years - 89.3%, 85.5% and 97.5%, in 5 years - 81%, 83.6% and 97.5%, in 10 years - 65.5%, 69.8% and 94.8%, accordingly. 63.2% of patients had I-II grade heart failure (NYHA). Comparison of actuary curves (Cox-Mantel test) did not reveal any distinctions from control group (P>0.05).
Conclusion: MedEng prosthetic heart valve provides good early and late results, which are similar to St. Jude Med., ATS Med. and Carbomedics mechanic valves implantation.

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INTRA-AORTIC BALLON PUMPING IMPROVES CEREBRAL PERFUSION IN PATIENTS WITH DECREASED EJECTION FRACTION AFTER BYPASS-SURGERY

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Objective: The understanding of changes in cerebral blood flow is of major interest in the field of cardiac surgery. Neurological deficits of unknown origin are a well known problem. Goal of the study is the evaluation of IABP on cerebral blood flow by means of transcranial Doppler-sonography in anesthetized cardiac surgery patients.
Methods: In eleven patients blood flow velocities in the middle cerebral artery were assessed at three different IABP settings: Without support, assist ratio 1:1, 1:2 and 1:3. Additionally hyper-and hypoventilation maneuvres were performed to investigate the cerebral autoregulation response. Protein S 100 determination was performed to evaluate the preexisting cerebral cell damage associated with cardiopulmonary bypass.
Results: In 11 patients (age 61±10a) with decreased ejection fraction (31±16%) balloon pumping caused an averaged increase of blood flow in the middle cerebral artery by +18%. Antegrade mean flow velocity in the middle cerebral artery significantly increased from 49±14 cm s-1 (no IABP support) to 59±14 cm s -1 (IABP assist ratio 1:1). During hyper- and hypoventilation maneuvres with and without IABP support a normal autoregulation response with a significant increase in mean blood flow velocity was observed (P<0.05). A 10-fold higher level of protein S100 compared to healthy test persons could be shown.
Conclusion: IABP may play an important role for improving cerebral blood flow in cardiac patients particularly in those with limited cardiac reserve combined with the need of increased cerebral blood flow following cerebral cell lesion.

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MITIGATION OF THROMBOGENICITY OF PORCINE AORTIC VALVE PROSTHESES IN A SHEEP MODEL

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Objective: Purpose was to investigate the influence of an endothelial cell layer on biocompatibility which was established on stentless aortic bioprostheses under in vivo conditions.
Methods: Endothelial cells and fibroblasts were obtained from the right external jugular vein of seven sheep. Endothelial cells were labeled using a fluorescent dye (PKH-26). Using a special seeding device, the cells were seeded onto pretreated (citric acid) stentless porcine aortic valves (Freestyle, Medtronic). Three unseeded valve prostheses served as controls. All ten valves were implanted into the descending aorta. Using an aorto-left atrial shunt, systolic/diastolic movements of the leaflets were achieved and documented by intraoperative direct sonography. After three months, the chests were reopened and the patency of the shunts and the motions of the leaflets examined by direct sonography. Thereafter, the valves were explanted. Specimen for immunohistochemical staining and scanning electron microscopy were taken prior to implantation and after explantation of the valves.
Results: All animals survived surgery and had their valves explanted after three months. Control group: Formation of a neointimal covering the first 0.5 cm of the prostheses. Structural degeneration of the leaflets without significant calcification but with evident leaflet retraction. Thrombus formation was found macroscopically in all sinuses. Histology confirmed these results and showed additional microthrombi on all leaflets. No endothelial cell layer on the cusps. Study group: Degeneration was similar to the control group. The leaflets and sinuses were still covered with endothelial cells as was proven with staining against factor VIII and CD31 as well as by scanning electron microscopy. No thrombus formation was found in the sinuses and the leaflets of the study group valves
Conclusion: The achieved endothelial cell layer seemed to act antithrombotic since thrombus formation was suppressed. This obviously improved biocompatibility of these biological prostheses.

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GEOMETRICAL DEFINITION OF THE ASYMMETRIC AORTIC LEAFLET ATTACHMENT LINES IN HUMAN

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Objective: With advances in tissue engineering and improvement of surgical techniques, stentless biological valves and valve sparing procedures have become an alternative to the traditional aortic valve replacement with stented bio-prostheses or mechanical valves. Stentless aortic valves and valve sparing procedures preserve the advantages of a native valve but require a better understanding of the anatomical structure of the aortic root. The leaflet attachment line is an area of special interest for valve designers and cardiac surgeons performing valve-sparing procedures. Only a few studies described the aortic leaflet attachment line but they omitted the aortic root asymmetry. New insights into the importance of anatomic asymmetry of the aortic root emphasize the need to give a precise and reproducible description of the asymmetric leaflet attachment line in human.
Methods: Silicone rubber was injected in aortic roots of nine human cadavers under a pressure of 80 mmHg. The casts were used to digitalize twenty-seven leaflets attachment lines. Leaflet attachment lines were normalized and described with a mathematical model.
Results: Mathematical model and precise geometrical construction of leaflet attachment lines for all three sinuses could be defined. During diastole each leaflet attachment line was found to be a intersection between a created tube and a specific surfaces. The leaflet attachment line dimensions: inter-commissural width (right 19.6±2.4 mm, non 17.5±2.0 mm, left 17.25±1.8 mm), sinus of Valsalva height (right 15.0±2.6 mm, non 13.85±1.9 mm, left 12.1±2.3 mm), leaflet tilting angle (right 78.2±7.1°, non 69.8±9.4°, left 64.9±7.0°), constructed tube's diameter (right 9.21±0.15 mm, non 8.96±0.13 mm, left 8.72±0.19 mm), and angle of constructed tube in relation to commissural plane (right 29.2±0.5°, non 25.4±0.4°, left 18.9±0.4°) did follow a pattern with the right-coronary dimensions being largest followed by the non-coronary and the left-coronary ($P<0.05$). The widest part of the leaflet attachment line was below the inter-commissural axis following a pattern with the non-coronary distance (2.08±0.03 mm) being largest followed by the right-coronary (1.07±0.02 mm) and the left-coronary (0.53±0.1 mm). The tilt angle (11.3±7.8°) between commissural and annulus plane was found to be independent of the aortic valve size.
Conclusion: The asymmetric aortic valve leaflet attachment line can be described as an intersection between a constructed tube with a profiled surface. This precise geometrical definition of the leaflet attachment line gives a better understanding of the aortic root anatomy and is useful for heart valve design and improvement of aortic valve reconstruction technique.

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POLYDIOXANONE (PDS) STERNAL WIRES FOR PREVENCTION OF STERNAL DEHISCENCE

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Objective: Sternal dehiscence and wound instability are troublesome complications following?? median sternotomy. Classic sternal approximation with stainless steel wires may be not the ideal?? approach in patients predisposed to these complications. We tested the efficacy of polydioxanone?? (PDS) suture in sternal closure and in prevention of complications in comparison to steel wires in?? high-risk individuals.
Methods: Three-hundred sixty-six patients undergoing elective cardiac?? surgery with full median sternotomy and having body surface area (BSA) less than 1.5 m^2 were randomly assigned to receive PDS (n = 181) or stainless steel (SS, n = 185) sternal approximation. The study was focused on aseptic sternal complications, namely bone dehiscence and superficial wound instability.
Results: Both bone dehiscence and superficial wound instability were less frequent in the PDS Group (4 and 3 cases in the SS Group, respectively vs. no cases in the SS PDS Group). Cox proportional hazards regression model in the whole study population identified female sex, chronic renal insufficiency, diabetes, advanced age, lower sternal thickness, osteoporosis, corticosteroid therapy and prolonged CPB or ventilation times as predisposing factors to any of the two studied sternal complications.
Conclusion: Data suggest that PDS suture can protect against development of aseptic sternal complications following median sternotomy in high-risk patients with little body mass. The adoption of PDS in other subsets of patients, i.e. obese individuals, is to be questioned.

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REGRESSION OF LEFT VENTRICULE MASS IN PATIENTS WITH AORTIC STENOSIS AFTER AORTIC VALVE REPLACEMENT

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Objective: This study analyzes the change in left ventricular (LV) mass index and ejection fraction after aortic valve replacement in adult patients.
Methods: Between January 1998 and May 2005, 70 patients underwent aortic valve replacement and were followed at the Bakulev center for cardiovascular surgery. Among patients: Men were 47 (67%). Etiology of the aortic stenosis was mainly bicuspid aortic valve disease in patients 49(70%), Rheumatism 20(28.5%), in one patient stenosis of the aortic homografts. All patients were in the 34 FC (NYHA). Left ventricular mass was measured by Doppler echocardiography in all patients undergoing aortic valve replacement All patients underwent aortic valve replacement with bioprostheses (n =20) and mechanical valves (n = 50). Left ventricular mass before operation was 400±32.1g, IMM was 210±38.5 ?/?2. Ejection fraction EF was 32±5%.
Results: Hospital mortality was 2 (2.85%). Left ventricular mass after operation was 360±52.1 g, IMM was 205±19.17 ?/?2. EF was 41±3%. Of all factors which we had examined we find that the rate of left ventricular regression after aortic replacement depend at type of prosthesis, size of the prosthesis and hypertension.
Conclusion: Patients undergoing aortic valve replacement had an improvement in functional status, and a reduction in left ventricular mass index, irrespective of prosthesis size and type. bioprosthetic valves are somewhat less obstructive than mechanical valves of the same size. They are also associated with a concomitantly more pronounced reduction of left ventricular mass.

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PERCUTANEOUS TECHNOLOGY OF VASCULAR SHUNTING FOR CONGENITAL HEART AND VESSELS PATOLOGY. EXPERIMENTAL STUDY

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Objective: To investigate the anatomical feasibility of creating percutaneous vascular connections in an animal model.
Methods: Connections between several medium size vessels were attempted in ten Beagle dogs. Different approaches and devices were tested to best bridge the path between both vessels. The catheter's system for magnetomekhanic positioning of a zone vascular bypass is developed. The flexible kinematic needle located in catheter with a magnetic tip at a high degree of accuracy of prompting both magnetic catheters, can be entered into nearby vessels (5-30 mm). The effective emission of a needle from a gleam of one vessel in a gleam adjusts another by the special terminator located on proximal end of a needle. Capture and realization of a core of a needle and also further use has shown it as an axis for realization of a stent-graft an opportunity of application of coaxial system of delivery last and its exact positioning between connected vessels. The vascular connection was established with a prosthesis specially designed for this study.
Results: Among the 10 dogs used in this study, it was possible to establish a porto-caval shunt in 4. An aorto-caval communication, right atrium-pulmonary artery and a superior vena cava-right pulmonary artery shunt were attempted in 3 dogs each. Ascending aorta-truncus pulmonalis shunt were attempted in 2 dogs. In last experiment we made Glenn operation extremely by endovascular approach. The tract was tried stabilized with a polyurethane cone-shaped covered prosthesis This prosthesis had a tubular configuration in its mid portion and flared ends which allowed an effective anchoring between two vessels without leaks.
Conclusion: Preliminary studies carried out in Beagle dogs open a new perspective of establishing a direct connection with prosthesis between two vessels. Although the technique needs to be improve, the targeting with flexible kinematic needle, Dormia basket and the use of magnetic devices on both vessels are promising elements to achieve this ambitious step.

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MAGNESIUM REPLACEMENT DURING AND AFTER CORONARY ARTERY BYPASS SURGERY

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Objective: Atrial fibrillation is among the common complications of cardiac surgery. It potentially leads to some other adverse events. Magnesium, has been used in the prophylaxis of postoperative atrial fibrillation with varying degrees of success. But the dose and timing of magnesium therapy has not been clearly defined. The aim of this study was assess the effect of magnesium replacement on postoperative atrial fibrillation.
Methods: A total of 60 consecutive patients who had elective, isolated, first-time coronary artery bypass surgery were prospectively randomized to two groups. Patients with obstructi?? ve pulmonary disease and/or renal failure were excluded from the study. Patients in the magnesium group (n = 30) received 1.5 gr (12.17 mEq) $MgSO_4$ infusion in 100 ml 0.9% NaCl solution before the initiation of cardiopulmonary bypass and once dailyfor 3 days after surgery. Patients in the control group (n = 30) received only 100 ml 0.9% NaCl solution at the same time points. Ionized magnesium, ionized calcium and potassium concentrations were measured before and after cardiopulmonary bypass, at 1st postoperative hour and each morning for the first 3 days postoperatively.
Results: Groups were comparable with respect to demographics and aortic cross clamp and cardiopulmonary bypass times as well as number of vessels grafted. Postoperative atrial fibrillation developed in 4 patients in the magnesium group and in 7 patients in the control group (P<0.05). The mean time for atrial fibrillation development is 29.85±13.54 h in control and 38± 6.32 in magnesium groups postoperatively. The extubation time (8.56±1.90 vs. 9.96±2.61), the length of intensive care unit(16.06±3.58 vs. 18.06±2.53) and hospital stay (6.30±0.98 vs. 6.93±0.73) were significantly shorter in patients who received magnesium (P<0.05).
Conclusion: Our findings indicate that the use of magnesium in the peroperative and early postoperative periods is highly effective in decreasing the incidence of atrial fibrillation after coronary artery bypass surgery.

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DIAGNOSTICS OF VASCULOPATHY OF RADIAL ARTERY USED AS A CONDUIT DURING CABG
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Objective: For reduction of risk of radial artery vasoconstriction during coronary artery bypass graft (CABG) surgery we suggest the method of preoperational diagnostics of vasculopathy of radial artery.
Methods: We investigated 105 patients with ischemic coronary heart disease, who were referred to CABG. All patients underwent standard protocol Duplex Ultrasound and functional tests: reactive hyperemia and test with the application of cold. Intraoperational specimens of radial artery (RA) were obtained during CABG. After that the data of Duplex Ultrasound and functional tests were compared to data of intraoperational biopsy.
Results: The data of Duplex Ultrasound allowed to divide all Dopplerogramms into 5 types: corresponding to normal structure and various morphological deviations of RA, such as intimal hyperplasia, dystrophy of smooth muscle cells, media hyperplasia and media calcification. All patients are divided into 3 groups on histological base.?? The first group (I) contained 16 patients (15%) with normal morphology of RA, the growth of RA diameter during reactive hyperemia was 12±1.8%, reduction of RA diameter during test with the application of cold was 1.5±0.95%, the growth of diameter after the removal of cold was 8.2±1.5%. The total time of diameter reduction during test with cold was 0.51±0.15 min. There were 48 patients with vasculopathy of RA, without histological signs of acute spasm in the second group (II). The growth of RA diameter during reactive hyperemia was 5.85±0.88%, the reduction of RA diameter during test with the application of cold was 2.29±1.9% and after the removal of cold the growth was 4.77±0.76%, with the total time of reduction of diameter of 2.68±0.42 min. The third group (III) contained 41 patients (39%) with significant vasculopathy and histological markers of acute spasm, the growth of RA diameter during reactive hyperemia was 1.78±1.12%, the reduction of RA diameter during test with the application of cold was 9.68±1.22% and after the removal of cold the growth was 0.18±0.87%, with the total reduction time of 7.4±0.51 min.
Conclusion: For reduction of risk of spastic responses of RA all patients require Duplex Ultrasound and functional tests on potential transplant before undergoing CABG. RA with normal morphofunctional characteristics or with not significant vasculopathy and satisfactory functional tests can be used as a transplant. RA with vasculopathy and pathological functional tests should not be used as a conduit, as it is prone to prolonged vasospasm.

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17 YEARS EXPERIENCE OF INTRA AORTIC BALLOON PUMPING IN TREATMENT OF LOW CARDIAC OUTPUT SYNDROME IN CARDIAC SURGERY PATIENTS
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Objective: The intra-aortic balloon pump (IABP) is an established additional support to pharmacological treatment of the failing heart after myocardial infarction, unstable angina and cardiac surgery. The aim of this study is to present our experience in treatment of low cardiac output syndrome in cardiac surgery patients.
Methods: Between January 1989 and September 2005, 3681 patients with coronary heart disease and valvular heart disease were operated. Intra aortic balloon pumping was used in 154 patients (4.2%) (84 males, 70 females; mean age 57.0 years; range 31 to 75 years). Operations included 107 coronary bypass grafting (CABG) (69.5%), 22 valve replacements, single or double (14.3%) and 25 valves combined with CABG (16.2%). The majority of patients (97.1%) were III-IV New York Heart Association class, 23.1% had end stages of a pulmonary hypertension, 69.2% have had 1 to 3 recent myocardial infarction. Left ventricular ejection fraction range 29 to 53% (mean 39%). We divided patients into two groups according to tactics of IABP application. Group A - 41 patients of 1085 operated between 1988 and 1995 (frequency of IABP use 3.8%). Group B - 113 patients of 2596 operated during 1996 and 2005. (frequency of IABP use 4.4%). There were no significant differences in age, gender and initial patient condition.
Results: The decision on IABP application for patients in group A accepted chaotically on a background of repeated unsuccessful attempts of switching-off the cardiopulmonary bypass despite of high doses of vasoactive drugs. In group B we start IABP according on the indications based on the following algorithm: 1. Absence of adequate hemodynamic reactions to average doses of vasoactive drugs after switching -off the cardiopulmonary bypass. 2. Mean blood pressure = 55 mmHg; 3.CI = 2.4 l/min/m^2; 4.Decrease of diuresis = 10 ml/h; 5. PO_2 in mixed venous blood = 30 mmHg; 6.VO2I = 115 ml/min/m^2. The result of radical change in tactics of IABP use was substantial improvement of the results of this method of circulatory support for low cardiac output syndrome treatment. The duration and dozes of vasoactive drugs, and the main result - hospital mortality have considerably decreased: in group A 28 patients (68.3%) in comparison with group B 39 patients (34.5%).
Conclusion: IABP is effective method of low cardiac output syndrome treatment in cardiac surgery patients. Direct effect and final results of treatment directly depend on timeliness of application according on the indications and algorithms.

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DECCELURATED AORTIC HOMOGRAFT IN TREATMENT OF AORTIC ROOT ABCESS
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Objective: The aim of this study is to evaluate the short results of deccelurated aortic homografts in the treatment of active aortic endocarditis in the presence of aortic root abscess.
Methods: Between January 2004 and oct. 2005 16 patients with aortic root abcess underwent aortic root replacement with decullareted aortic homografts. The main age was 24±6,1 y. among patients men were 10 (62.5%). Endocarditis was in native aortic valve in 13 (86.6%) patients. 2 (13.3%) patients had endocarditis of prosthetic aortic valve. all cases. Intraoperative transesophageal echocardiography was systematically used. Precise bacteriologic diagnosis was available in 12 (80%). The common responsible microorganism was S. Epidermidis.
Results: All the aortic homografts were inserted as aortic root replacement. No hospital mortality. Early recurrent infections and paravalvular leaks occurred in 1 patients. During follow-up (21±7 months) no recurrent endocarditis nor thromboembolic complications were observed. The function of the decullareted aortic homografts was satisfactory in all cases.
Conclusion: Decellularized aortic homograft and radical debridement of the infected tissue offer a low recurrent infection rate. Allowing the possibility to avoid a prosthetic material. Dececullrated aortic homograft could represent an option for surgically treating active aortic endocarditis more rapidly.

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CORONARY ANGIOSCAN. THE SHIFTING PARADIGM

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Objective: Recent trends in CT scanner technology has opened new frontiers in the field of non invasive coronary angiography. Given the relatively important number of negative invasive angiographies performed each year, eliminating the risks inherent to this procedure by non-invasive methods greatly contribute to dimishing the risk.
Methods: After injection of contrast, the procedure is performed under short apnea and triggered by ECG recording giving a multitude of possible image reconstructions, i.e., volume rendering, virtual angioscopy and three-dimensional renconstruction of the heart and coronary vessels.
Results: In 100 patients, adequate visulisation of the coronary arteries was achieved in 98% of patients with the advantage of visualizing the coronary wall as well as the lumen. The main reasons for failure was arrhythmia and excessive motion. Besides evaluating coronary artery atherosclerosis, CT angiography allowed the diagnosis of coronary aneurysm and the exact localization of postoperative false aneurysm. The main disadvantages of the technique are the absence of dynamic films and exposure to radiation
Conclusion: The increased accuracy and sensitivity of noninvasive coronary angiography makes it an excellent diagnostic tool and a probable replacement to invasive procedures. It should reduce the morbidity and mortality as well as the cost of conventional coronary arteriography. Furthermore, it has the added benefit of offering spacial resolution of the examined vessels.

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COMPARATIVE STUDY OF SMALL SIZED BILEAFLET PROSTHETIC VALVES IN AORTIC POSITION

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Objective: Aortic valve replacement with small prosthetic aortic valve in adults, is still controversial. Any prosthetic valve usually causes residual pressure gradient, which differs according to the size and type of the valve.
Methods: Among 246 patients operated on at South Hospital in Amiens University, and Al-Azhar University Hospital between January 2003 and December 2004, 89 patients were subjected to the study with a mechanical bi-leaflet aortic valve 19 or 21 mm. Age were ranging from 16 to 82 years (mean 56).
Results: For valve size 21 mm (n = 49 patients, mean age 54). Mean maximum pressure gradient show significant decrease (t = 4.7068, P<0.001). Mean left ventricular mass (LVM) was decreased postoperatively with a mean decrease of 41.9±13.8% which was statistically significant (t = 10.8935, P<0.001). Mean end systolic wall stress (ESWS) show no detectable change (t = 1.0020). For valve size 19 mm (n = 40 patients, mean age 48). Mean maximum pressure gradient show statistically insignificant difference, (t = 0.5147). Mean ESWS show no detectable change. Mean LVM show significant decrease with a mean of 15.7±6.6% which was statistically significant (t = 5.3289, P<0.001).
Conclusion: We may conclude that valve of 21 mm is an acceptable size as it gives a regression of the left ventricular hypertrophy and a significant improvement in the left ventricular systolic performance and function. The 19 mm valve shows symptomatic improvement, but leaves a residual hypertrophy with minimal improvement in the left ventricular systolic functions.

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COMPARISON OF BIOMECHANICAL AND STRUCTURAL PROPERTIES BETWEEN HUMAN PULMONARY HOMOGRAFTS AND PULMONARY XENOGRAFTS VALVES

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Objective: In the last years there has been an increase in number patients undergoing Ross procedure. One of problems after Ross procedure is the durability of the conduit used in reconstruction of right ventricular outlet tract. The aim of this study was to compare pulmonary homograft and pulmonary xenograft valve properties.
Methods: Experimental studies of biomechanical properties and structure of pulmonary homograft and xenograft valve were carried out on pathologically unchanged pulmonary valve, collected from 15 cadaveric hearts and 30 pulmonary xenografts(15 pulmonary xenografs is a 0.25% glutaraldehyde -fixed, the other 15 is a diepoxy fixed Butandiol diglycidylether 95%). Biomechanical properties of 100 specimens (all valve elements: cusps, fibrous ring, commissures, sinotubular junction, sinuses) were investigated using uniaxial tensile with universal testing machine INSTRON. Ultrastructure was studied using transmission and scanning electron microscopy.
Results: Strength in circumferential direction for pulmonary homograft valve cusps is higher than for pulmonary xenograft valve (12.69?1 and 22.64?1.83 mp, respectively). Strength in radial direction for human pulmonary and pulmonary xenograft is practically the same (0.41?0.03 and 0.40?0.04). In ultrastructural study, different layout and density in each construction element are determined. The human pulmonary and xenograft valves have common ultrastructural properties.
Conclusion: Mechanical differences between pulmonary homograft and xenograft valve are minimal. Ultrastructural studies show that the pulmonary homograft and xenograft valve have similar structural elements and architecture. This investigation suggests that the pulmonary xenograft valve can be considered mechanically and structurally suitable for use as a conduit for RVOT during Ross procedure.

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SUCCESSFUL MANAGEMENT OF PULMONARY ARTERY PERFORATION FOLLOWING CHEST TUBE INSERTION

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Objective: Chest tube placement is frequently used in the treatment of a variety of pleural disease. Pulmonary artery injury is the rare complication during tube thoracostomy, and the prognosis is uasually grave. We present a case of pulmonary artery injury in order to raise awareness of this potential complication and the management
Methods: A 68-year-old man with chronic obstructive pulmonary disease was admitted because of left empyema thoracis, and a 32 FR. chest tube was placed for drainage of the empyema which culture revealing group D streptococci. Because of the tube dislodgement and some fluid collection still noted by chest radiography, another 32 FR. chest tube was inserted through the 5th intercostal space at the anterior axillary line without the use of a trocar at 7th hospitalization day. During the procedure, a finger was inserted into the pleural cavity to guide the chest tube, a little resistance to advancement of the tube was noted, and then followed with 500 ml of rapid drainage of pulsating dark red blood. Shortness of breaths, tachycardia and hypotension developed progressively. The tube was clamped and the patient was resuscitated with volume replacement. Chest radiography demonstrated the tube crossing the mid-line and projecting over the cardiac outline. The patient was brought to the operative room under the impression of inadvertent cannulation of pulmonary artery.
Results: The standard left thoracotomy revealed severe pleural adhesion and the tube was seen to be penetrating the superior part of the left lower lobe, into the interlobar fissure, and the pulmonary artery. Because of the frozen pleural space, the pulmonary artery was unable to be clamped. A 14FR. FOLEYCATH latex balloon catheter was placed to occlude the perforation for temporal hemostasis and proper placement of the sutures. Pleural decortication was performed concomitantly and the recovery was uneventful. The patient was discharged 10 days after the operation.
Conclusion: This care emphasizes the potential complication of pulmonary artery catheterization during chest tube insertion and points out the Foley balloon catheter used to achieve hemostasis under the condition of inadequate pulmonary hilum control.

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EARLY POSTOPERATIVE PULMONARY FUNCTION IN OFF PUMP VERSUS ON PUMP CORONARY ARTERY BYPASS SURGERY

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Objective: Conventional CABG with cardiopulmonary bypass has been associated with significant pulmonary complications and functional changes. In the last several years OPCAB procedures became much more popular because of data suggesting reduction in postoperative morbidity, including better pulmonary outcome during off-pump procedures. The aim of this study was to evaluate potential benefits of avoiding CPB on pulmonary outcome including spirome.

Methods: Patients with isolated coronary disease without any previous respiratory disorders underwent cardiac surgery with (n = 20) or without CPB (n = 20). All patients with any pulmonary complication in perioperative period were excluded from the study. Preoperatively and 5 days after the operation we done spirometry. We examined spirometry, arterial blood gases, leucocytes and troponin level, time to extubation, hospitalization and other data from perioperative period.
Results: There were 6 females and 14 males in OPCAB group mean age was 62.7 vs. 8 females and 12 males (NS) in conventional CABG group, mean age 59.5 (NS). There were no significant preoperative demographic differences between groups. Mean number of grafts was 2.0 vs. 2.7 (P<0.05) per patient and mean time of operation was 145 vs. 182 min (P<0.5). Time to extubation 10.2 vs. 13.4 h (P<0.05), Leukocytes level on day of operation was 11.0 vs. 17.66 109/l (P<0.05), troponin level 0.46 vs. 1.19 ng/ml (P<0.05) on first day after operation. One hour postoperatively pO_2 was 131.2 vs. 97.13 mmHg (P<0.05), pCO_2 30.9 vs. 38.9 mmHg (P<0.05) and sO_2 99.1 vs. 96.2% (P<0.05), Fi O_2 in both groups was 50%. All parameters in spirometry decrease significantly (P<0.01) except in OPCAB group where changes in MEF 25%, MEF 50%, MEF 75% (maximal expiratory flow) and PEF (peak expiratory flow) were no significant (NS), changes in those parameters between two groups were statistically significant. Mean time of hospitalization was 8.6 vs. 10.2 days (P<0.05).
Conclusion: OPCAB compared to conventional CABG was associated with better pulmonary outcome in coronary artery bypass surgery.

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THE QUALITY OF LIFE CHANGE AFTER CORONARY ARTERY BY-PASS SURGERY A
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Objective: It is well known that high NYHA functional class has a negative influence on the quality of life, but it is not completely clear what is like the quality of life change after CABG at patients with different preoperative NYHA class.
Methods: We studied 243 consecutive patients, who underwent elective CABG. The Nottingham Health Profile Questionnaire part 1 was used as the model for quality of life determination. We distributed the questionnaire to all patients before and six months after CABG. Two hundred and twenty-six patients filled in the postoperative questionnaire.
Results: Before CABG, quality of life in all sections was significantly worse in patients with higher NYHA class (P<0.01). The NYHA class were 2.30±0.67 at baseline and improved to 1.62±0.59 (P<0.001) after CABG. Six months after the operation, quality of life was significantly improved in patients with all NYHA classes (P<0.01). The improvement in quality of life was related to higher NYHA class in sections of physical mobility (r=0.37, P<0.001), energy (r=0.3, P<0.001) and pain (r=0.25, P<0.001).
Conclusion: Patients with higher NYHA class had worse preoperative quality of life. Patients with preoperative higher NYHA class had greater improvement in sections of physical mobility, energy and pain six months after CABG.

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FEMALE GENDER AS A PREDICTOR OF QUALITY OF LIFE CHANGE AFTER CORONARY ARTERY BY-PASS SURGERY
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Objective: Many of studies are showed poorly quality of life (QOL) at a women after coronary artery by-pass surgery (CABG). The aim was to examine the presumption that the female gender can be the predictor of quality of life change after coronary artery by-pass surgery.
Methods: For this study, there were prospectively studied 243 consecutive patients who underwent elective CABG. The Nottingham Health Profile Questionnaire part 1 was used as the model for QOL determination. The questionnaire contains 38 subjective statements divided into six sections: physical mobility, social isolation, emotional reaction, energy, pain and sleep. The scores ranged from zero to 100, by adding the item weight, determined by Thurstone method of paired compares, to every positive answer. We distributed the questionnaire to all patients before CABG and six months after CABG. Two hundred twenty six patients filled in the postoperative questionnaire.
Results: In women we fond significantly worse scores of preoperative QOL in all sections of QOL (P<0.01), except a sleep section (P = 0.102). Six months after CABG QOL was significantly improved in both groups. The improvement in QOL six months after CABG was related to the female gender in energy section (r=0.140 P = 0.035). Among 26 examined variables with potential influence on postoperative QOL, female gender was the independent predictor of the QOL worsening in pain section (P = 0.001, odds ratio = 3.93, 95% confidence interval 1.74 to 8.88).
Conclusion: Female gender is independent predictor of QOL worsening in section of pain six months after CABG.

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CHANGING TRENDS IN CARDIAC SURGERY IN A MULTISURGEON GROUP 1991-2004
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Objective: Review of changing patterns in a cardiac surgical practice can help to guide the longterm strategy options in a setting of changing population demographics, evolving technology, and environmental shifts.
Methods: Review of all 13,843 adult cardiac operations from 1991 until 2004 of our group.
Results: Coronary artery bypass surgery (CABG) peaked in 1995 and declined with 40% in 2004. Early mortality remained stable despite the increase of age, risk profile and previous percutaneous interventions. There was no major rise in late redo CABG. Off-pump and minimal invasive CABG increased up to 33% in 2004. Multiple arterial grafting increased up to 60% in 2004. Valve surgery volume increased from 1997 up to 2004 with 140%, from 166 to 380 cases annually. Limited access surgery accounted for 64% of all the valve procedures in 2004. There is an increase of mitral valve repair and declining use of mechanical prosthesis. Combined valve and CABG surgery increased with 170% over the last 10 years, from 106 cases in 1996 up to 235 cases in 2003. There is a small decline in 2004 due to the changing trends of hybrid therapy.
Conclusion: CABG volumes are decreasing continuously with an increasing use of multiple arterial grafting and less invasive procedures. Valve operation volumes are steadily increasing, with an important shift tot minimal access surgery, valve repair and tissue valves. Combined procedures increase significantly with hybrid therapy as an alternative in the recent years.

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THE EFFECT OF DIABETES MELLITUS ON SHORT-TERM MORBIDITY AND MORTALITY IN CORONARY ARTERY BYPASS SURGERY
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Objective: Currently, 15 to 30% of the patients that undergo coronary artery bypass grafting (CABG) are diabetics. However, the effect of diabetes mellitus (DM) on short-term morbidity and mortality after CABG is controversial. The aim of this retrospective study was to investigate whether DM increases short-term morbidity and mortality after CABG or not.
Methods: Two hundred and fourty eight patients who underwent CABG operations in our clinic between June 2003 and September 2005 were included in the study. Mean age of the patients was 59.8±9.75 and there were 187 male (76%) and 59 female (23.9%). Seventy-nine patients (32.1%) were diabetic (DM group) and 167 patients (67.8%) were nondiabetic (control group). The groups were compared for morbidity data and mortality rates in the postoperative short-term.
Results: The incidence of superficial wound infection were significantly higher in the patients with insulin-treated DM than both in the patients with oral antidiabetic-treated DM and in the nondiabetic patients (P<0.05). When the groups were compared for the incidence of intra aortic balloon pumping, acute renal failure, multi organ failure, cerebro vascular complications, superficial wound infection, sternal dehiscence, mediastinitis and reoperation due to mediastinal bleeding, there were no statisticaly significant difference (P>0.05). Mortality rates in the DM group and the control group were 3.7% and 4.7%, respectively but there were no statisticaly significant difference (P>0.05).
Conclusion: In conclusion, in this study we found that DM does not significantly increase short-term morbidity and mortality in the patients who undergo CABG. Provided that strict measures are taken against infections, CABG can be performed in diabetic patients as safely as it is being performed in nondiabetic patients.

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EARLY STATINS THERAPY IN CORONARY BYPASS SURGERY: IMMUNOMODULATION OF INTERLEUKIN-6 AND C-RECTIVE PROTEIN

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Objective: Cardiopulmonary bypass (CPB) is associated with a systemic inflammatory response determining generalized endothelial activation, and statins have previously been shown to modulate inflammatory reaction in acute coronary syndromes and after CPB. In this study, we evaluate the immunomodulatory effect of pravastatin and its capacity to reduce the inflammatory expression of interleukin-6 (IL-6) and C-reactive protein (CRP) by using a model with known plasmatic levels of these inflammatory mediators.
Methods: Twelve patients with coronary artery disease were enrolled in a prospective study. Six of them received pravastatin; the others served as controls. Pravastatin group received 40 mg daily 48 h before surgery and additional dose after CPB. Treatment lasted for seven days. Plasma levels of tumor necrosis factor (TNF), interleukin-1 (IL-1), interleukin-6 (IL-6), soluble IL-6 receptor (sIL-6R), and brain natriuretic peptide (BNP) were measured at baseline, during hemodynamic changes and at 12, 24, 48 h, and at seven day after surgery.
Results: Pravastatin reduced by 50% the IL-6 levels at 48 h and on the seventh day; [mean±SD values, treated vs. untreated patients 81.0±49.2 vs. 193.0±93.2 pg/ml and 15.0±9.8 vs. 30.0±16.2 pg/ml, respectively (P<0.05)]. CRP decreased on the seventh day with plasma levels of 3.6±1.2 vs. 8.2±1.9 mg/dl (P<0.05). IL-1 and TNF levels remained low in both groups, while sIL-6R and BNP showed no differences.
Conclusion: Early use of statins induced a precocious modulation of IL-6 expression and later reduction of plasma CRP levels. Statin effects on the kinetics of inflammation markers could represent a valuable index to decide early and intensive therapy.

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SIX-YEAR CLINICAL EXPERIENCE WITH THE KEMCOR PORCINE BIOPROSTHESES

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Objective: Bioprosthetic valves are used a crucial improvement in surgical treatment of mitral valve disease. The aim of study was to evaluate our clinical experience with the KemCor bioprosthesis, a diepoxy-preserved porcine aortic valve.
Methods: Between January 1999 and January 2005, this valve was implanted in the mitral position in 136 patients (47 males; 89 females; mean age 49.24+9.03 year, range 18-71). Preoperatively, patients were in NYHA classes III (65.4%) and IV (28.7%); 44 patients (32.3%) had undergone previous cardiac surgery and 89 (65.4%) had chronic atrial fibrillation. Etiology was rheumatic in 48.6%, myxomatous in 2%, endocarditis in 49.4%. Concomitant cardiac procedures were performed in 82.4% (112/136).
Results: Early mortality was 5.14% (7/136). The mean follow-up was 41.6±10.1 months (total 924 patient-years; maximum 6 years). At the time of the study, more than 80% of patients were in NYHA class I or II. Late mortality was 1.4%. Freedom from valve related adverse events at 6 year was 98.6% for thromboembolism, 97.2% for thrombosis, 95.8% for thromboembolic-related hemorrhage, 100% for endocarditis and 98.6% for structural valve deterioration. Late follow-up echocardiography in all survivors showed a mean pressure gradient of 4.1+1.1 mmHg, and effective orifice area of 3.1+0.3 cm^2 for all valve sizes.
Conclusion: Clinical and hemodynamic performance of the KemCor bioprosthesis were very satisfactory during the first 6 years after clinical introduction.

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THE EFFECT OF FENOLDOPAM ON SYSTEMIC INFLAMMATORY RESPONSE AND HEPATIC BLOOD FLOW FOLLOWING CABG WITH CARDIOPULMONARY BYPASS

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Objective: Reduced splanchnic blood flow has been hypothesized to be responsible for the initiation of the systemic inflammatory response produced by cardiopulmonary bypass (CPB). Fenoldopam (DA-1 receptor agonist) has been shown to be specific reno-splanchnic vasodilator in animal and human studies. We set out to study the effects of Fenoldopam on hepatic blood flow and systemic inflammatory response.
Methods: Twenty-four consecutive patients with good LV function, undergoing elective/urgent CABG were included in a prospective randomized study. Patients were randomized to receive either Fenoldopam (0.2 µg/kg/min) (F; n = 12) or normal saline (NS; n = 12), continuously after induction of anaesthesia until 24 h following completion of surgery. Hepatic blood flow (HBF) was measured using Indocyanine green dye disappearance rate before, during and after CPB. Interleukins IL-1ß, IL-6, IL8, IL-10, IL-12 and TNF-a, compliments C3a, C4a, C5a were measured as inflammatory markers. Repeated measures ANOVA test was used to compare the timed samples.
Results: There were no statistical differences between the groups in pre and intra operative variables. In the F group heart rate (P = 0.007) and cardiac index increased following the commencement of infusion, mean arterial pressure was similar (P = 0.699). Hepatic HBF was similar in both groups during CPB and in the post operative period. Increase of C3a, IL-8 was attenuated in the group-F (P = 0.005). Increases in TNF-a, IL-1ß, IL-6, IL-10 and IL-12 were not uniform in both the groups precluding comparison.
Conclusion: Fenoldopam does not augment hepatic blood flow pre and postoperatively in patients undergoing CABG. Partial attenuation of inflammatory response is possible with Fenoldopam infusion.

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OBLIQUE PLACEMENT OF PROSTHETIC VALVES IN THE AORTIC POSITION PROVIDES NORMAL HEMODYNAMICS - A PROSPECTIVE STUDY

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Objective: Aortic root enlargement procedures for prevention of patient prosthesis mismatch are complex and not readily undertaken. Alternatively oblique placement of aortic valve prosthesis (prosthesis tilted upwards along the non-coronary cusp) is performed in difficult situations. We performed this procedure routinely on a series of patients and studied the haemodynamics in the post -operative period and at follow-up.
Methods: Twenty-five patients underwent oblique aortic valve replacement (biological) between Mar-Sept 2005. Clinical data was collected from the hospital notes. At follow up trans-thoracic echocardiograms were performed. Aortic root dimensions, peak flow velocity, LV function, annular size and size of the valve placed were noted. Wilcoxon signed rank test was used to compare annular and prosthetic dimensions.
Results: Seventy-six percent patients were males (mean age 64.59±15.4 yrs). Twenty five percent of the AVR were urgent procedures. Aortic stenosis was the indication in 50%. Fifty percent patients had associated CABG. The mean bypass time was 156±53.35 min and cross clamp time was 116±39 min. More than 2 mm larger prosthesis was inserted in all patients. The effective orifice area index (EOAI) for the prosthesis was significantly higher than annular size (P = 0.005). The peak flow velocity at 3cm, 1 cm below the valve and at the level of the valve were measured (0.74-1.3 m/s, 1.2-2.1 m/s and 1.5-3.5 m/s respectively) producing on an average a mean gradient of 4.84 mmHg and a peak gradient of 8.94 mmHg. Morbidity (AF-10 and PPM - 2 patients).
Conclusion: Oblique aortic valve replacement is a safe procedure and provides normal haemodynamics.

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FACTOR INFLUENCING THE EARLY POSTOPERATIVE PERIOD AFTER PULMONARY ARTERY BANDING IN PATIENS WITH UNIVENTRICULAR PHYSIOLOGY

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Objective: Overall frequency of single ventricle (SV) variants are 7.7%, when expressed as a fraction of all congenital heart defects. About 30% of patients with SV have no pulmonary stenosis (PS) as a component of heart malformation. The pulmonary artery banding remains most common infant/neonatal palliation for univentricular hearts with excessive pulmonary flow. We assume that insufficient PA banding and excessive pulmonary flow are the main risk factors of poor outcome in early postoperative period.

Methods: We retrospectively reviewed clinical records of 35 patients with functional SV without PS and with no systemic flow obstruction, who were palliated by pulmonary artery banding. The age, weight, postoperative values of oxygen saturation, peak pressure gradient across the band, duration of ICU stay, duration of mechanical ventilation and inotropic support were studied. We used Cox regression to find a prognostic indicator of the time of ICU stay.
Results: The patients median age was 90 days, median weight 3.9 kg (2.3-13 kg). Early postoperative mortality was 2.8% (n = 1). The median duration of ICU stay was 117 h, mechanical ventilation - 63 h, duration of inotropic support - 36 h, median postoperative Sat O_2 was 85% (70-98%). Median peak pressure gradient across the band - 56.5 (ranged 27-85) mmHg. We have found no correlation between postoperative saturation and duration of ICU stay, mechanical ventilation and inotropic support. Positive correlation was found between peak pressure gradient across the band and postoperative parameters mentioned above. The time of ICU stay considerably increased, if the peak pressure gradient across the band was less than 50 mmHg (P = 0.01).
Conclusion: In our experience excessive pulmonary blood flow was estimated as a risk factor of prolonged ICU stay. Postoperative Sat O_2, even in patients with insufficient PA banding didn't correlate with the time of ICU stay. We suppose that systemic saturation may not reflect the Qp/Qs ratio and the true amount of pulmonary blood flow. We assume that peak pressure gradient across the band in SV patients less than 50 mmHg is the index of excessive pulmonary flow. Patients with peak pressure gradient across the band more than 50 mmHg have more favorable early postoperative period compared to the patients with lower gradient.

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IMPORTANCE OF THE URINARY MEASUREMENT OF GLUTATHION STRANSFERASE IN PATIENTS WITH BORDERLINE RENAL FUNCTION UNDERGOING ON-PUMP AND OFF-PUMP CORONARY ARTERY BYPASS SURGERY

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Objective: Acute renal failure occurred after cardiac surgery has rather high levels of mortality and morbidity. The incidence of renal failure after on-pump and off-pump surgery was assessed by urinary alpha glutathione s-transferase (a-GST) measurement in patients with borderline renal function
Methods: Between May 2004-April 2005 50 patients who underwent coronary artery bypass surgery and who have preoperative plasma creatinine levels ranged between 1.5 to 2.0 mg/dl, included in this study. On-pump coronary artery bypass was performed in 25 of them, and off-pump surgery in other 25 patients. Urinary a-GST levels, plasma creatinine levels, creatinine clearance and fractional excretion of sodium were measured.
Results: Urinary a-GST levels significantly raised in postoperative 24 h after the surgery (P<0.001) and lowered in postoperative 72'nd hour (P<0.001). Urinary a-GST levels were revealed a statistically significant difference between groups in postoperative 24'th h (P = 0.044). Weak correlation was detected between a-GST levels and plasma creatinine (r^2=0.337, P<0.001), creatinine clearance (r^2=0.467, P<0.001) and fractional excretion of sodium (r^2=0.559, P<0.001). Preoperative and postoperative 24'th h levels showed positive predictive value for the acute renal failure occurrence (91% for a-GST = 4.8 µg/l and 88% a-GST = 7.1 µg/l respectively), but not for the dialysis requirement. Acute renal failure occurrence, dialysis requirement and mortality rates were similar in the both groups.
Conclusion: Although it was shown that cardiopulmonary bypass has some detrimental effects on the renal tubular function revealed by elevated urinary a-GST levels, tubular damage produced by the cardiopulmonary bypass is not only factor associated with postoperative acute renal failure occurrence. Because of the factors independent from the pump usage remain to affect adversely the renal function, excluding the pump usage alone is not sufficient to certainly prevent postoperative acute renal failure occurrence in patients who have preoperative borderline renal function. But at least, cardiopulmonary bypass known as a damaging factor over renal function can be excluded from the surgery procedure to prevent more extending the damage, and off-pump surgery in patients with borderline renal function is advisable as a first step of kidney preservation.

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SURGERY OF PULMONARY EMBOLISM: IS THERE ANY INDICATION TODAY?

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Objective: Thromboembolic events are a major cause of morbi-mortality after different surgical procedures. Our objective is to present a patient, with a very important pulmonary thromboembolism complicating her recovery from coronary artery bypass grafting, whose treatment included surgical removal of the thrombotic material. We'd like to review the litterature on this matter and discuss its present indications.
Methods: A 65-year-old female, with severe coronary artery disease, was operated on to achieve a complete myocardial revascularization. Five arterial and venous grafts were done under extracorporeal circulation. Surgery was carried on uneventfully. On her 3th postoperative day, after a sudden deterioration of his general condition, the patient was diagnosed of massive pulmonary thromboembolism. With severe haemodynamic failure, we decided to perform an emergent surgical thromboembolectomy under extracorporeal circulation.
Results: The patient did well and, the next day, she had an inferior vena cava filter also implanted. Following a good recovery, she was discharged from hospital 15 days later. Ten months after, she is assymptomatic and having a normal life.
Conclusion: Surgical pulmonary thromboembolectomy has, at present days, very few indications. Maybe the main one is a massive pulmonary embolism with a formal contraindication for fibrinolytic therapy. The majority of authors dealing with this life-threatening condition consider that the decision about surgical treatment should be made strictly based on the individual patient's condition. Before surgery, maintenance of adequate oxigenation and cardiac output by the anesthesiology team is mandatory, thus resulting in an increased survival rate and improval of surgical results. Placement of an inferior vena cava filter, over the first postoperative hours, is also mandatory. The availability of a cardiovascular surgery department may increase surgical indications to those situations of massive pulmonary embolism in which time is of paramount importance and the rest of therapeutic options have failed.

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IS THERE A REAL RISK TO OPERATE THE ELDERLY PATIENT >80YO FOR CABG ?

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Methods: Between 2002 and 2005, 615 patients underwent CABG in our institution, 65 of them have more than 80-years-old (10.5%), 52% male. Sixty-four percent suffered from hypertension, 22% from diabetes, 40% tobacco, the mean EF of the left ventricle was about 50%, 78% of the patients underwent isolated CABG, 20% underwent combined surgery for valve replacement, and 2% for carotid endarteriectomy. Thirty percent only of our patients profit from offpump surgery, 34% need the use of inotrops in the immediat postoperative care 0.75% of them had been transfused with more than 02 units of blood, 33% of them presented an atrial fibrillation, 40% benefit from a fast track extubation inferior to 6 h after there arrival to the CSU.
Results: Five patients (7%) had been re-operated for bleeding, and 5 others need a prolonged respiratory assistance, 2 patients died (3%)the mean duration of CSU stay was 2 days and the total in hospital stay was 7 days
Conclusion: our study shows that CABG in the elderly (>80 yo) can be performed with a low risk of mortality and morbidity, even if it is done on pump.

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MULTIPLE PRIMARY CARDIAC MYXOSARCOMA IN RIGHT VENTRICLE AND PULMONARY ARTERY

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Objective: The term myxosarcoma is currently not used in standard classification for soft tissue tumors, but restricted to cardiac tumors. Primary cardiac myxosarcoma is a very rare disease and is difficult to differentiate from myxoma clinically and pathologically. Although these tumours occur

in a similar anatomical distribution (left atrium) to cardiac myxoma, the relationship between these two tumours is uncertain due largely to the limited studies available that characterise the morphological features of myxosarcoma.
Methods: The clinical and pathological features, including immunohistochemical studies of cardiac myxosarcoma, in a 73-year-old female who died after cardiac operation are reported.
Results: The patient presented with sudden onset of intermittent dyspnea and orthopnea for two months. Echocardiography showed a mobile, pedunculated tumor, 3.5 x 4 x 2.5 cm in size, at right ventricle and pulmonary artery. It also extended to left pulmonary artery. The tumor was also confirmed by cardiac MRI. Histologically, the excised tumor was composed of spindle and stellate cells within a myxoid stroma. Immunohistochemical staining for vimentin and myoglobin was positive, while there was negative expression of desmin, smooth muscle actin, factor VIIIa, CD34, CD68, S100 protein, bcl-2 and for epithelial markers. Tumor was resected from right ventricle and pulmonary artery followed by reconstruction of the pulmonary artery and pulmonary valve replacement with bioprothesis. At the postoperative period the patient died because of right heart failure and hypoxia.
Conclusion: Cardiac myxosarcoma is exceptionally rare and a distinct disease entity. Our case had two right sided primary myxosarcomas with pulmonary hypertension exceptionally. The main postoperative problems are right heart failure and progressive hypoxia in such cases.

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A RARE CAUSE OF CARDIAC TAMPONADE WITH A SUCCESSFUL RESECTION UNDER CARDIOPULMONARY BY-PASS: AN INTRAPERICARDIAL-EPICARDIAL CYST

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AN UNEXPECTED GI COMPLICATION OF CABG DUE TO DRAINAGE TUBE INSERTION: TRANSVERSE COLON PERFORATION CAUSING MEDIASTINITIS

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Objective: Postoperative infectious mediastinitis is one of the rare complications seen in open hearth surgery patients. Despite an incidence of less than 5% according to data taken from the literature published in the last decade, the importance of this complication is the mortality which can vary between 10% and 47% requiring reoperation, prolonged ventilation, intensive care unit and the hospital stay and causing increased hospital costs. Reported risk factors include diabetes, renal failure, obesity, immune compromise, COPD, cigarette smoking, increased age and preferred operative techniques such as bilateral internal mammary harvest, repeat sternotomy, prolonged operative time, excessive use of bone wax and electrocautery, reexploration and prolonged mechanical ventilation. This report describes a case of a 65-year old man who had serous drainage from the incision site, subcutaneous emphysema, air leakage and pneumothorax on X-ray 4 days after he underwent surgery for CABG*5. It was E. coli mediastinitis due to iatrogenic colon perforation by drainage tube insertion.
Methods: A 65-year-old man with triple-vessel disease and a LMCA lesion of 90% scheduled for an elective CABG operation was operated on. The operation was uneventful and he was discharged from the CVICU on the 2nd postoperative day. On the 4th postoperative day he was readmitted to CVICU due to pneumothorax. Following chest tube reinsertion purulent drainage with fecalous odour was observed. Drainage sample cultures revealed E. Coli as causative agent. Careful examination of the mediastinal area during revision revealed fecal materials in the supradiafragmatic area. The origin of the feces was the transverse colon iatrogenically perforated during mediastinal drainage tube insertion during the first operation.
Results: The major point of this report is to hightlight the importance of a complicated previous gastric operation performed 20 years ago, where the surgical team had to follow the incisional scar for two month due to delayed healing process because of uncontrolled diabetes. Transverse colon was herniated though the subxiphoidal area following that gastric operation. Patient was lost on the 104th postoperative day in septic shock.
Conclusion: Previous operation scars and their surrounding areas are extremely dangerous zones for drainage tube placement. History of previous operation, although of noncardiac origin, must be carefully evaluated.

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PULMONARY VESSELS CHANGES AND RESULTS OF THE FONTAN-TYPE OPERATIONS

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AN UNUSUAL LOCALISATION OF POSTINFARCTION VENTRICULAR SEPTAL DEFECT

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Objective: Postinfarction VSD is a rare but life-threatining mechanical complication of MI. In the era after reperfusion therapy septal rupture incidence is thought to occur in 0.3% of acute MIs. Two separate and unusually located (midseptal and anterior-subpulmonic) VSDs were diagnosed in the same patient without ventricular free wall involvement.
Methods: A 48-year-old man with a 15-day history of intermittent chest pain, nausea and vomiting without orthopnea or dyspnea was referred to our institution. Primary evaluation of the patient revealed 3/6 pansystolic murmur which was found to be caused by a postinfarction VSD by transthoracic echocardiography. Emergent angiocardiography confirmed the diagnosis of VSD due to totally occluded LAD and RCA. Patient underwent an emergent operation where the midseptal VSD was closed by a transatrial approach and the anterior-subpulmonic VSD was repaired by an infindibular approach in order to avoid ventriculotomy. RVOT reconstruction was performed with an infindibular pericardial patch to prevent RVOT obstruction. LIMA-LAD and Ao-RCA CABG were also added to the procedure.
Results: There were no difficulties in weaning the patient from the ECC. The postoperative course was uncomplicated and the early transthoracic echocardiography revealed no shunt. Thus the patient was discharged from the CVICU on the 3rd postoperative day.
Conclusion: Although occuring rare, postinfarction VSD is a serious mechanical complication of MI. A thorough operative exploration is crucial for the surgical success in order to avoid ventricular damage caused by a ventriculotomy in an already traumatised myocardium as in cases of postinfarction VSDs.

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CORONARY REOPERATIONS: PECULIARITIES AND DIFFICULTIES

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Objective: Reoperations of coronary artery surgery still carry a higher mortality and morbidity rate, compared to primary revascularizations procedures. The danger of reoperation is mainly in reopening the sternum and in the manipulation of the heart and the old grafts.
Methods: All patients included in the study have direct coronary artery bypass grafting at their first cardiac operation and also have repeated coronary grafting on cardiopulmonary bypass or without it at their second operation. Patients with other combined cardiac procedures were excluded.
Results: We are reporting results of 126 patients after Re-do coronary artery bypass grafting (CABG). Reoperative procedures have revealed technical obstacles that differentiate them from primary procedures. These problems include: 1) Difficulties with reentry; 2) Potential for cardiac and conduit

injury during dissection; 3) Availability of conduit; 4) Management of patent vein grafts; 5) Myocardial protection; 6) Bleeding and blood products use.
Conclusion: With the increasing of patients who have undergone coronary artery bypass grafting the incidence of reoperative CABG is also increasing and experience with reoperative CABG has increased. We review our experience of Re-do CABG with different strategies, which have evolved our possibilities to minimize the risk of operation and postoperative complications.

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LEFT ATRIAL APPENDAGE ANEURYSM HUGE IN SIZE
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Objective: Left atrial appendage (LAA) aneurysms are extremely rare. They are caused by congenital dysplasia of the atrial muscle. LAA aneurysms also appear with some other associated cardiac and pericardial pathologies such as mitral valvular disease, partial agenesis of the pericardium, endocarditis and tuberculosis. Patients present with atrial tachyarrhythmias due to ectopic foci of atrial rhythm generation or systemic thromboembolism due to irregular blood flow in the recesses of the aneurysm. Surgical excision of the appendage alone has been reported as sufficient in eliminating the atrial tachyarrhythmias.
Methods: We present 68-year-old female suffered from aneurysm of the left atrial appendage and atrial arrhythmias. It is known that those cases most commonly present with atrial tachyarrhythmias and thromboembolism. Resection of the aneurysm is usually curative. We performed transesophageal echocardiogram that exposed a large left atrial appendage aneurysm with additional bi-atrial enlargement and also electrocardiography revealed atrial fibrillation. The case was successfully treated with resection of the aneurysm.
Results: The patient had an uneventful postoperative course and she returned to a stable sinus rhythm after surgery. However, she had recurring atrial tachyarrhythmias first week postoperatively and was treated with amiodarone. Four weeks postoperatively, she returned to normal sinus and amiodarone was discontinued. She continues to be in stable sinus rhythm at her one year follow-up with no antiarrhythmics. The pathological study revealed a mass with an area of 9 × 6 cm with epicardial and endocardial surfaces, without thrombi or the presence of any inflammatory signs.
Conclusion: If the aneurysms are surgically resected in patients with isolated LAA aneurysms, the outcome is good with a total disappearance of the symptoms. But it should be kept in mind that the focus of the arrhythmia may not always be the left atrial appendage aneurysm. Therefore electrophysiologic study should be done before operation and if there is another focus of arrythmia determined then appropiate procedures such as Mase III or ablation of atrioventricular conduction for treatment of arrhythmia should be performed.

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REPORT OF A CASE OF COARCTATION OF AORTA ASSOCIATED WITH ESOPHAGEAL ATRESIA AND TRACHEOESOPHAGEAL FISTULA
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Objective: The esophageal atresia and tracheoesophageal fistula usually coexist with cardiac anomalies. However, coexistence of these anomalies is rarely seen with aortic coarctation. We in this study presented a case having aortic coarctation besides esophageal atresia and tracheoesophageal fistula, and its simultaneous surgical treatment.
Methods: A six-day infant of 2500 grams with the diagnosis of aortic coarctation and esophageal atresia was referred to our clinic for surgical treatment. The patient was intubated as the general status got worse and respiration was depressed and cyanosis occurred when she was planned to make cardiac catheterization. Physical examination revealed rales on the left thorax. Telecardiography showed increased cardiothoracic index and extremely increased stomach silhouette. The patient was taken to urgent operation. Right posterolateral thoracotomy was performed through the 5th intercostal space. The esophagus was seen to end in a proximally wide stump on exploration. A distal fistula between the right main bronchus and the esophagus was observed. Fistula excision and primary repair of the bronchus was done. The esophagus was repaired in an end to end fashion. The division and ligation of the patent ductus arteriosus was done. The aorta was clamped between the origin of the left common carotid artery and the left subclavian artery. The descending aorta was clamped. The coarctation segment was excised and the aorta was repaired primarily in an end to end fashion.
Results: The patient was taken to the intensive care unit with inothropic support. The patient was lost on the 39th postoperative hour due to low cardiac output syndrome and sepsis.
Conclusion: We think that early diagnosis, appropriate treatment for avoiding the aspiration, rapid referral to a cardiac surgery center would decrease the mortally and morbidity in such cases.

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OUR DIAGNOSTIC AND SURGICAL THERAPY MODALITIES IN CARDIAC MYXOMAS
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Objective: Long-term prognosis is good in adult who were operated for benign intracardiac tumor such as myxoma. In this study we aimed to evaluate our diagnostic methods, surgical therapy strategies and postoperative results of 16 cardiac myxoma patients whom we operated in the last 13 years.
Methods: We operated 16 patients with cardiac myxoma diagnosis, between January 1992 and December 2005. Nine were women (56%) and 7 were men (44%). Average age was 53 during operation. Thirteen myxomas were at left atrium (81%) and 3 were at right atrium (19%). Functional capacity of the patients were class II in 8, class III in 6 and classVI in 2 according to NYHA classification. In all patients accurate diagnosis was with echocardiography. Average period between the onset of symptoms and diagnosis was 8.7 months. Patients were operated under cardiopulmonary bypass and tumors were excised radically from their endocardial origins.
Results: In 11 of 13 patients (84%) LA myxoma was originated from interatrial septum and in 2 from posterior free wall of LA (16%). In 3 cases with RA myxoma, lesion was orginating from interatrial septum and had a stem. Dimension of the myxomas were between 3.5 x 2.5 x 1 cm and 7 x 5 x 6 cm. After operation, patients were discharged after 6 days. In our series hospital mortality was 0.00% and average postoperative follow-up was 7 years 5 months. Also we didn't determine any recurrence signs in long-term echocardiography follows.
Conclusion: Myxoma is the most frequent primary cardiac tumor. They can be emboli source due to their intracardiac localization and fragility. Selective therapy method for myxomas is surgical resection. We believe that biatrial surgical excision method is a sufficient and reliable method with long-term follow-up and that annual echocardiography examination beginning on the 6 postoperative month is necessary to evaluate the recurrences.

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WHY RADIOFREQUENCY ABLATION IN THE PRESENCE OF NUTRIENT ARTERY OF MYXOMA: CASE REPORT
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Objective: Three quarters of the primary cardiac tumors are benign and myxomas are the most frequent ones usually arise from the interatrial septum. Left atrial myxomas are seen in more than 75% of cases. Angiographically detectable tumor vascularization is thought to be rare. We in this study, present a patient with left atrial myxoma which has an angiographically detected tumor nutrient artery.
Methods: A 47-year-old female patient with 2 months history of dyspnea on exertion and fatique had severe mitral regurgitation and a regular mass with the dimensions of 2.8 x 1.6 cm, located in the left atrium which was arising from the interatrial septum and protruding into the mitral valve orifice on diastole. Right coronary artery angiogram showed a large branch arising from SA node artery which was supplying the myxoma. The surgery was done under standard left atriotomy through the interatrial groove. Myxomas excision was done before the mitral valve surgery. Tumor attachment site to the interatrial septum was also excised. After valvular replacement, right atriotomy was done in order to determine the location of the nutrient artery. On exploration,

the cut end of the nutrient artery from which cardioplegic solution was leaking was ligated and interatrial septum was closed with primary sutures.
Results: Postoperatively, the patient had an uneventful recovery. On the postoperative sixth day, the control coronary angiography showed successful ligation of preoperatively detected tumor nutrient artery and a new RC artery to atrial fistula formation.
Conclusion: Primary tumors of the heart are rare with an incidence of approximately 0.02% in pooled autopsy series. Coronary angiography usually is prescribed in patients over 40 years of age to rule out asymptomatic coronary artery disease. Coronary angiography may demonstrate the tumor nutrient artery as in the present case. The supplying arteries had to be ligated during tumor excision. Atypical angina and myocardia ischemia due to coronary steal from coronary artery to left atrium has been reported unless this tumor nutrient artery is ligated. Therefore, interatrial septum must be largely resected and pedicle base must be coagulated. However, diathermic coagulation will be arrhythmogenic. We are in the opinion that coagulation of the tumor vascularization by radiofrequency ablation of this region may be an appropriate solution. As a conclusion, we think that ligation of the tumor nutrient artery may not be enough for the surgical treatment but also radiofrequency ablation of the pedicle base should be added to the procedure.

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INTIMAL SARCOMA OF THE PULMONARY ARTERY WITH RETROGRADE EXTENSION TO PULMONIC VALVE AND RIGHT VENTRICLE: CASE REPORT
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Objective: Primary intimal sarcoma of the pulmonary artery is an extremely rare tumor, is highly lethal and is frequently mistaken for pulmonary thromboembolism.
Methods: A 42-year-old male patient with the symptoms of exertional dyspnea and chest pain. The transthoracic echocardiography showed a mobile thrombus like mass in the pulmonary artery with the dimensions of 60 x 20 mm which was protruding into the right ventricular outflow tract. The peak and mean gradient across the pulmonic valve was 71 and 42 mmHg respectively. The operation was performed under general anesthesia. The longitudinal pulmonary arteriotomy was done. A huge round mass extending distally to the main pulmonary artery branches most of which was adhered to the vessel wall was seen in the lumen. The mass within the lumen of the pulmonary artery was almost occluding the artery. It was severely adhered to the pulmonic valve. A longitudinal right ventriculotomy was also done to the infundibulum. A polypoid mass which was protruding to the ventricular cavity was resected. Some part of the pulmonary arterial wall and the pulmonic valve was also resected because of the adherent nature of the mass. The right ventriculotomy was closed primarily whereas the pulmonary arteriotomy was closed with a PTFE patch. He was discharged on the sixth day after the operation without any complication.
Results: The biopsy material showed severely atypical spindle and oval cells withy varying degrees of atypia and nuclear polymorphism. The mitotic activity was extremely high. Pleomorphic tumor cells especially surrounded the endothelium. Immunohistochemically, smooth muscle actin, myoglobin and factor VIII were positive whereas striated muscle actin, CD31 and CD34 were negative. The screening tests 1 and 6 months after the surgery revealed no metastasis or recurrence.
Conclusion: Intimal sarcomas are malignant mesenchymal tumors arising in large arteries. There are few reports concerning intimal sarcomas of the pulmonary artery. They are often mistaken for pulmonary embolism. So it can lead to inappropriate therapy such as anticoagulation or thrombolysis. Surgical resection of the tumor offers the best on prolonged survival. ?? Such a mass should be extensively resected if there is invasion to the vascular structures or the neighboring tissues or if there is a suspicion of malignancy. This extensive resection may prolong the survival of the patient. Besides, the patient should be evaluated for distant metastasis after the operation.

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PACEMAKER IMPLANTATION WITH LEFT SUPERIOR VENA CAVA PERSISTENCE:A DIFFICULT SITUATION
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Objective: Left superior vena cava (SVC) persistence is a congenital defect that may adversely affect a pacemaker implantation. Our objective is to present one of this challenging cases and review the litterature on this field.
Methods: A 72-year-old male, with multiple cardiovascular risk factors, dilated cardiomiopathy and paroxistic atrial fibrillation(AF) was admmited to the Cardiology ward of our institution complaining of syncopal crisis. ECG showed a typical sick synus syndrome, with ventricular pauses longer than 4 seconds, and paroxistic AF. A bicameral pacemaker was indicated. Insertion of the electrodes was done through the right subclavian vein, then observing by fluoroscopy the abnormal way of the guidewire approaching the right atrium, via persistent left superior vena cava and coronary sinus (absent right SVC). Right ventricular pacing was achieved with a long electrode for coronary synus, in order to reach an optimal, although not perfectly stable, position. Right atrium was reached with an active-fixation electrode through the same way. The entrance to the right ventricle from the coronary synus required considerably difficult and challenging manoeuvers.
Results: The patient wasn't discharged the next day, as usual, but observed a couple more days in order to confirm normal operation of the pacemaker and prevent ventricular electrode displacement. Recovery was completely uneventful.
Conclusion: Left SVC persistence occurs in 0.1-0.3% of the population with normal hearts and in 310% of those individuals with congenital heart defects. Although its clinical relevance is not important, it may complicate the implantation of cardiac pacemakers or defibrillators, especially in absence of right SVC. This situation should be managed by experienced surgeons in the field of pacemaker implantation. In case of impossibility to reach rigth ventricle, pacing of left ventricle could be achieved through tributary veins of the coronary synus

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ATRIAL FIBRILLATION AFTER CABG
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SURGICAL AND MEDICAL TREATMENT OF BRUCELLA ENDOCARDITIS
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Objective: We investigated the most appropriate surgical and medical treatment of brucella endocarditis. We present the cases of three patients who undertook aortic valve replacement in our hospital after brucella endocarditis.
Methods: We studied the clinical outcome of three patients infected with brucella endocarditis and who were treated with a combination of doxycycline, streptomycin and ciprofloxacin and afterwards undertook aortic valve replacement. The patients were studied by transthoracic echocardiography three months and one year after the operation while blood samples were cultured at the same time.
Results: After one year of follow-up no evidence of relapse of infection or prosthetic dysfunction has been detected.
Conclusion: Involvement of the cardiovascular system is an uncommon focal complication of brucellosis. The incidence of endocarditis is reported to be 1-2%. However, it is a life threatening and, often, under-diagnosed complication. Early diagnosis and management with combined medical and surgical treatment are the key points of a good outcome.

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A STUDY OF THE FREQUENCY OF PATHOLOGICAL AND PHYSIOLOGICAL CHANGES IN CARDIAC PATIENTS SURGERY WITHIN FORTY EIGHT HOURS OF POST OP PERIOD
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Objective: the first ±48 h of post cardiac operative period during which the patient stays in ICU, can be crucial to be aware of physiological and pathological changes in different parts of the patient's body, in a way that some of these changes may cause difference in the trend of the patient's convalescence period. This research intends to gather information on the

frequency of the changes in physiological and pathological status of the patients in the first 48 h of post cardiac operative period.
Methods: A total of 250 patients underwent cardiac surgery including: CABG (152 patients), valve operation (74 patients), and congenital operation (23 patients) physiological and pathological changes were investigated with respect to nineteen different factors among 250 patients. The investigation took place within the first 48 h of post op period while they were in ICU.
Results: The results indicate a decrease in average level of CVP and systolic and diastolic blood pressure in the Patients immediately after being moved to ICU in comparison with their last moments in the operative room Most of the patients who had mediastinal bleeding which caused to have reoperation were placed in the second Patient list of their surgeons and subsequent to the reoperation, no mortality was witnessed. The frequency of atrial arrhythmia in valvular surgery and ventricular arrhythmia in congenital surgery were higher in comparison with other cardiac surgery. In addition, a remarkable percentage of patient's temporary epicardial pacemakers had no function. The post op heparin infusion in ICU don't resulted in an increase in the frequency of leg hematoma (saphenous vein harvest site). Additionally, a notable percentage of Patients indicated to have skin back burn and also to have transfusion of packed cell, platelet and FFP.
Conclusion: see the results paragraph.

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SCLEROTHERAPY AND AORTOCORONARY BYPASS GRAFTING
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Objective: Sclerotherapy is one of the most usable and safest method of treatment of varicose vein disease. In most cases the injections of sclerotic preparation are made in the veins of the shin which are tributaries of the big subcutaneous vein. However patients who underwent sclerotherapy as all people in the world have high risk of development coronary arteries atherosclerosis. Therefore aortocoronary bypass grafting may become the last salvage for them. Large subcutaneous vein is known to be often used as an autotransplantat during this operation.
Methods: One hundred and twenty-two histological specimens of the large subcutaneous vein wall in its orifice were investigated using light microscopy. Histologic specimens were prepared out of bioptats obtained during the operation by Troyanov - Trendelenburg in 22 patients. Fifteen of these patients had undergone sclerotherapy in different time before the operation. We used Trombovar and Ethoxisclerol as a sclerotic preparation. Seven patients did not pass sclerotherapy before the operation. They formed the control group.
Results: 2-3 days after the injections of sclerotic preparation we observed necrobiosis and degeneration of endothelium. In several cases even the desquamation of endothelium was revealed. In addition to changes of endothelium we also observed leukocytic infiltration in tunica media and sub endothelial layer. This picture was observed for 1 month. One year after the last injection necrobiotic and dystrophic changes of endothelium and leucocytic infiltration disappeared. However the sclerosis of tunica media and adventitia was present.
Conclusion: Sclerotherapy produced in the shin region causes serious alterations in the large subcutaneous vein wall on all its extent. Therefore large subcutaneous vein becomes unsuitable for aortocoronary bypass grafting.

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STENTLESS AORTIC BIOPROSTHESIS IN AORTIC VALVE DISEASE SURGERY
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Objective: This study was performed to assess hemodynamic efficiency of stentless bioprostheses in aortic valve disease surgery (in elderly patients).
Methods: Stentless bioprostheses were implanted in 25 patients with isolated aortic valve disease between 2002 and 2005 in clinic of cardiovascular surgery. All patients were retirees (the mean age being 68±8.3 years). We implanted stentless xenografts Medtronic Freestyle in 14 patients, AB-Mono-Kemerovo in 4 patients, and in 6 cases we used AB-Composite-Kemerovo. The sizes of the valve implanted amounted to 23 mm (n = 10), and 25 mm (n = 12) and 27 mm (n = 2). Degenerative aortic stenosis was indication in 18 cases, whereas aortic insufficiency due to infective endocarditis in 6 patients. We used subcoronary technique with coronary sinuses excising in 21 patients and full root technique in 3 patients. Hemodynamics was assessed with transthoracic and transesophageal echocardiography (Sequia Acuson XP - 128).
Results: The mean pressure gradient (Pmean) before discharging and in 1 year after Medtronic Freestyle bioprosthesis (23 mm) implantation was 13.6±1.8 mmHg; peak gradient (Pmax) was 27±1.8 mmHg. Bioprostheses 25 mm in size had Pmean 11±1.6 mmHg, Pmax - 21±1.8 mm. In patients with xenografts AB-Mono-Kemerovo the mean gradient amounted to 12±1.6 mmHg, peak gradient - 18±2.3 mmHg. Pmean, wereas Pmax in patients with AB-Composite-Kemerovo was 7 mmHg and 13 mmHg, respectively.
Conclusion: Initial experience in aortic valve replacement with the stentless bioprostheses shows that their good hemodynamic efficiency. However, only further follow-up for 7 years and over will determine valve durability and bacterial resistance of stentless bioprostheses. Nevertheless their usage seems to be perspective.

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RADIOFREQUENCY ABLATION TYPICAL ATRIAL FLUTTER ACCOMPANIED BY ATRIAL FIBRILLATION AFTER OPEN HEART SURGERY
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Objective: We investigate results radiofrequency ablation typical atrial flutter (AFl) with paroxysmal atrial fibrillation (AF) after open heart surgery.
Methods: Eighteen patients with typical AFl (mean age 53.9±11.2 years, mean duration typical AFl - 21.3 month, 2 patients with chronic AFl), that had in history 2 or more paroxysms of AF, underwent radiofrequency ablation (RFA) of tricuspid isthmus. Drug therapy was ineffective with 2 or more medicines (including I class) in all patients. All patients underwent radiofrequency ablation right isthmus with registration bidirectional block. Tachycardia cycle length - 289±21 ms. Typical counterclockwise AFl registered in 12 patients, clockwise AFl - 6 pts. Radiofrequency ablation performed in 16 patients with a 8 mm tip catheter and in 2 - with an irrigated tip catheter. Mean quantity of impacts required was 19.2±-1.5. Bidirectional block was registered in all patients in right isthmus. Inraoperative provocated AF was induced in 8 pts. One patients needed repeat procedure related to AFl recurrence.
Results: Sinus rhythm observed in all patients during follow-up from 1 to 34 months. In 16 patients antiarrhythmic therapy was discontinued. One patient developed paroxysmal AF 6 month after procedure and sometimes these recurrent episodes occure but rare than before operation.
Conclusion: In patients with typical AFl accompanied by AF after open cardiac surgery catheter radiofrequency ablation has proved to be an affective procedure and decrease paroxysms of AF.

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SHOTGUN PELLET IN THE INTERVENTRICULAR SEPTUM: IS CONSERVATIVE MANAGEMENT AN OPTION?
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Objective: The management of shotgun pellet cardiac injuries remains still controversial because of the variety of clinical manifestations and limited experience. We present a case of an adult patient who suffered a shotgun cardiac injury with a pellet embedded into the interventricular septum that was managed successfully through a conservative approach.
Methods: A 37-year-old-man suffered a shotgun injury from a 25 yards distance due to a hunting accident. The patient was conscious and hemodinamically stable and presented multiple 0.5-cm entrance wounds caused by several shotgun pellets located in both upper and lower limbs, abdominal wall and anterior and left anterolateral areas of chest wall. The chest X-ray showed multiple bilateral intrathoracic and substernal pellets as well as a left pneumothorax that required a percutaneous drainage insertion. The thoracic CT-scan revealed an intramyocardial pellet embedded into the muscular portion of the interventricular septum, next to the left ventricle outflow tract). A moderate pericardial effusion that measured 1 cm at its largest dimension was revealed by echocardiography; no interventricular shunts were detected and the left ventricle ejection fraction was of 60%. An abdominal laparoscopic exploration discarded the presence of intraperitoneal visceral injuries.
Results: Considering the lack of arrythmias or signs of heart failure, a conservative management was decided. The patient remained hemodinamically stable and free of cardiovascular symptoms during in -hospital stay, so he

was discharged 6 days after the accident. No increase of pericardial effusion was detected during a 6-month follow-up and a CT-scan showed a shotgun pellet encysted with fibrous tissue into myocardial wall of the interventicular septum three months after the accident. The patient remains asymptomatic 6 months after the injury.
Conclusion: Management of cardiac pellet injuries should be individualized but the success of the conservative therapy in this case support that pellets completely embedded in the interventricular septum may very well tolerated and only require observation if patient remains asymptomatic and hemodinamically stable.

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CORONARY ENDARTERECTOMY AND BYPASS GRAFTING WITHOUT CARDIOPULMANARY BYPASS
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Objective: In modern cardiac surgery, coronary endarterectomy is safer than previously and can be a tool for complete myocardial revascularization. In selected patients coronary endarterectomy is possible to perform with off-pump CABG. We review our experience in coronary artery endarterectomy performed without cardiopulmonary bypass.
Methods: Between January 2002 and July 2005 off-pump coronary endarterectomy and CABG were performed in 10 patients. Two of them (20%) had II functional class of angina, six (60%) had III and two had IV (20%) functional class by CCS. The mean EF was 48.3±4.4 and 8 (80%) patients had three vessels disease. The incidence of perioperative myocardial infarction, need for inotropic support, mortality, recovery and safety were evaluated.
Results: There were no deaths. All patients were completely revascularized. The left internal thoracic artery was bypassed to the LAD in 9 (90%) operations, the Cx arteries were bypassed with radial transplantates in 9 (90%), and all grafts on the RCA were of saphenous vein. Mean distal anastomoses amount per patient were 3.5. Perioperative myocardial infarction occurred in one (10%) patient and dopamine was used for him for 5 h. Nine (90%) patients were angina free and were in NYHA I class. One patient had CCS class I. All patients were discharged in routinely date.
Conclusion: Coronary endarterectomy without cardiopulmonary bypass can be performed in patients with diffusely diseased coronary arteries to achieve complete revascularization with an accepted outcome.

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SUDDEN VISUAL LOSS DUE TO ISCHEMIC OPTIC NEUROPATHY AFTER CARDIOPULMONARY BYPASS FOR ATRIAL SEPTAL DEFECT CLOSURE
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CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH COMPLICATED ISCHEMIC HEART DISEASE
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Objective: The aim of this study is to present our experience in surgical treatment of the patients with severely complicated ischemic heart desease.
Methods: From May 2001 till November 2005 28 patients undergone coronary artery bypass grafting with correction of ischemic mitral regurgitation and resection of left ventricular aneurism. All patients had Q-wave myocardial infarction with formation of left ventricle dilatation. Mean age of the patients was 55.3±6.7 years. 89.3% were male. Mean ejection fraction was 34%±9.5%. Mean left ventricle diastolic size was 64±6.2 mm, systolic - 46±4.7 mm. Mean additive EuroSCORE was 8, logistic - 11.2%. Mean pulmonary artery pressure was 46 mmHg.
Results: In 24 (85.7%) of the cases left mammary artery was used. Mean number of distal anastomoses was 2.3. Eleven pateints undergone mitral valve replacement and in 17 patients mitral valve plasty was performed. Tricuspid valve annuloplasty took place in 9 cases. In 17 patients Dor aneurism plasty was performed, in 7 patients - linear plasty and in 4 patient - plasty with left ventricular dublicature formation. Mean ejection fraction increased from 34%±9.5% to 43%±5.1% (P<0.05). Mean left ventricle diastolic size decreased from 64±6.2 mm to 56±4.7 mm (P<0.05), systolic - from 46±4.7 mm to 42±4.1 mm (P<0.05). Pulmonary pressure decresed to 36 mmHg (P<0.05). In all patients with mitral valve plasty there were no significant mitral regurgitation in postoperative period. 2 (7.1%) patients died in postoperative period.
Conclusion: Coronary artery bypass grafting in patients with severely complicated ischemic heart desease could be successfully performed with good results and acceptible mortality.

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CORONARY ARTERY BYPASS GRAFTING IN PATIENTS OLDER THEN 60 YEARS
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Objective: The aim of this study is a comparative analysis of operavite results of the patients of two age groups - before 60-years-old and older then 60 years.
Methods: From October 2000 till November 2005 528 patients undergone isolated coronary artery bypass grafting. One hundred and eighty one (34.3%) patients (1 group) were older then 60 years. Three hundred and fourty-seven (65.7%) patients were younger then 60 years (2 group). Mean age was 64.9 years. In 2 group the age varied from 33 years to 59 years, the mean age was 50.2 years. 83.3% of the patients in the 1 group were male and in 2 group - 90.6% (P<0.05). In the 1 group angina of the III class was in 64% of the patients and of IV class - ? 22%. In 2 group - 57.7% and 11.9% (P<0.05) accordingly. Unstable angina was in 13.4% of the patients of the 1 group and 16.2% in 2 group (P<0.05). Acute myocardial infarction was in 38.7% of the patients of 1 group and in 40.6% in 2 group (P>0.05).
Results: In group 1 only mammary artery was used only in 4.7% of the patients and in 14.1% of the patints of group 2. In 24.5% ? in 33.9% of the patients of 1 and 2 groups accordingly autoarterial grafting was performed. 61.3% of the operations in group 1 ? 51.0% in group 2 were performed onpump, 35.8% ? 45.3% - off-pump and in 2.9% ? 3.1% of the cases there was a conversion from offpump to on-pump. The mean number of distal anastomoses in 1 group was 3.11, in 2 group - 2.83 (P<0.05). In the patients of the 1 group radial artery was used in 83.9% of the cases. In 2 group radial artery was used in 79.7% of the patients. Left internal mammary artery was used in 86.8% and 81.8% of the patients of both groups. Mean hospital stay time was 17.2 and 16.4 days in both groups (P>0.05). In postoperative period 2 (1.1%) patients died in group 1 and 3 (0.9%) in group 2 (P>0.05).
Conclusion: CABG in patients older then 60 years could be successfully performed with good immediate results using all modern surgical technique without significant difference comparing with the patients of the younger age.

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HYDATID CYST OF THE HEART: EXPERIENCE IN 12 PATIENTS
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Objective: To analyze our experience in correction of heart hydatidosis in 14 patients
Methods: Between 2000 and 2004, 14 patients with heart hydatidosis were operated on at our institute. Two were females and 12 were males. Mean age of these patients was 21.1±13.1 years and ranged from 7 to 47 years. Average weight was 46.8±18.2 kg. Localization of hydatid cysts was in five cases in the left ventricle, in three cases in the interventricular septum and in one case in the wall of right ventricle. Subendocardial and subepicardial localizations of the cyst were observed in 6 cases and in 3 cases respectively. Of all 9 cases, other organ's anomalies were observed in 7 cases. Two patients were in the 4 NYHA class what required urgent surgical intervention. Echinococcectomy with cardiopulmonary bypass was performed in 11 cases. The rest patients underwent operations without cardiopulmonary bypass. We used standard crystalloid cardioplegic solution and moderate hypothermia in all cases. Surgical approach was individual to all patients.
Results: Hydatid cysts were incised and chitinous capsule was removed in all patients. The cavity was closed by purse-string suture in 5 patients

with subendocardial localization. In 3 patients the cavities were remained without closing. In 2 patients the cavity was sutured by edges of fibrous capsule. One patient developed pulmonary thromboembolism at the operation that caused lethal outcome. There were no heart failure events in early postoperative period. All patients were administered Mebendazole in the postoperative period. All patients were followed within mean period of 5.2±2.1 years. Seven patients with associated anomalies were operated on for these disorders. There were no complications and mortality related to cardiac procedures.
Conclusion: Hydatid cysts of the heart should be removed surgically in urgent order. Careful approach to surgical treatment of the condition relates to good results in long-term period. The cavity created after removal of subendocardial cyst should be closed in order to avoid thromboembolic complications.

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CONGENITAL HEART DISEASE ENDOCARDITIS CAUSED BY BARTONELLA
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Objective: Bartonella species are emerging pathogens that have been recognized as causative agents of blood culture-negative endocarditis. This case report documents the first description to our knowledge of Bartonella species endocarditis affecting a child with congenital heart disease.
Methods: A 17-years-old female was referred for treatment of aortic and mitral regurgitation, and subaortic fibromuscular tunnel. She had been operated at the age of 2 years for ostium primum atrial septal defect. In 2000, she underwent mitral valve repair and excision of a subaortic fibromuscular diaphragm in Moscow. Four years later the patient developed shortness of breath. Echocardiography showed left ventricular (LV) hypertrophy, grade II mitral regurgitation (MR) from a dilated annulus. The aortic valve had combined aortic stenosis and aortic regurgitation with vegetations on the cusps. Aortic annular diameter measured 12 mm and the mean LV/Aortic gradient was 60 mmHg. Blood cultures were negative.
Results: At operation, the LV outflow tract admitted only a 12 mm Hegar's dilator. It was reconstructed by extended root replacement (the Ross-Konno Operation). A 23 mm pulmonary homograft was used to replace the right ventricular outflow tract. Mitral annuloplasty was performed with 27 mm Duran AnCore Ring.?? Bacterial culture remained negative after 6 days incubation. Polymerase chain reaction analysis of aortic valve vegetations allowed diagnosis of Bartonella henselae infection. Postoperative recovery was smooth with no residual LV outflow tract gradient and no mitral regurgitation. ECG documented a permanent sinus rhythm.
Conclusion: The extended root replacement enabled simultaneous replacement of the destroyed aortic valve and achieved enlargement of the LV outflow tract. Alternative reconstruction techniques are discussed. We recommend that Bartonella infection be considered in the diagnostic work-up of patients with suspected endocarditis.

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SUBCLAVIAN CANNULATION IN SURGERY OF TYPE A AORTIC DISSECTION: SHOULD IT BE THE CHOICE?
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Objective: Extracorporeal circulation (ECC)in surgery of type A aortic dissection was classically established by femoral cannulation. Nevertheless, early antegrade flow, in addition to profound hypothermia and circulatory arrest, are widely accepted measures in these procedures. Our objective was to evaluate the alternative of subclavian cannulation and verify its supposed advantages (antegrade flow, good size, ease of arterial control, cerebral protection, ect.).
Methods: Between June 2000 and December 2005, 54 patients (44 males, 10 females, average age 67)with acute type A dissection have been operated on at our institution (35 replacement of ascending aorta,12 ascending aorta + hemiarch, 4 Bentall procedures and 3 ascending aorta + arch + cerebral vessels + elephant trunk). ECC was established through the right subclavian artery. Average time of circulatory arrest: 32 min. Average time of ECC: 218 min.
Results: Hospital mortality (30 days),13 patients (4 ARDS+sepsis, 2 severe cerebral damage-stroke previous to surgery-, 3 cardiogenic shock, 1 pneumonia, 2 uncontrollable bleeding, 1 stroke-previous to hospital discharge). The remaining 41 patients presented neither signs of neurological damage nor visceral malperfusión. Two patients, after circulatory arrest, required change of arterial return (1 female, dissection of cerebral and visceral vessels; 2-male, aberrant right subclavian artery). No morbidity was observed related to arterial access.
Conclusion: Cannulation of the subclavian artery is an excellent method of arterial return in these procedures. Visceral and cerebral perfusion are very well achieved, thus resulting in rapid cooling and good cerebral protection, due to flow through the true lumen. Risks of femoral cannulation can be avoided (retrograde flow, dissection or calcification of the artery, ect) So, in conclusion, the subclavian artery should be the site used for blood return in surgery of type A aortic dissection.

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MANAGEMENT OF CONCOMITANT CORONARY AND BILATERAL CAROTID ARTERY DISEASE: A CASE REPORT
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Objective: Patients with severe coexistent coronary and carotid artery stenosis represent a difficult and high-risk population. There is high incidence of myocardial infarction after carotid endarterectomy (CEA) and the neurological injuries occur after coronary artery bypass surgery. In addition, a small number of patients who are undergoing coronary artery bypass grafting (CABG), present with symptomatic or significant bilateral carotid stenosis. Presence of bilateral carotid stenosis makes management of this subgroup of patients even more challenging. Herein we describe our management of a patient with coronary artery disease and bilateral severe carotid artery stenosis.
Methods: A 75-year-old male with the symptoms of unstable angina admitted to our institute. Results of the physical examination were normal with the exception of bilateral carotid bruits. Doppler duplex scanning and carotid angiography revealed greater than 70% stenosis in the both internal carotid arteries. The coronary angiography showed greater than 70% coronary arterial stenosis in the left anterior descending coronary artery and in the first diagonal, first obtuse marginal and circumflex posterior diagonal branches. The patient was consulted to the department of Invasive Radiology and a staged treatment in such a way that first staged bilateral carotid stenting and then CABG operation was initially planned. However, in Turkey, the costs of carotid stents are not paid by health insurance associations yet. Since the patient could afford the cost (nearly 3000 US dollars) of only one carotid stent, carotid stenting on the one side before CABG and carotid endarterectomy on the other side after CABG were then decided.
Results: Firstly, left carotid artery stenting was done using a self-expandable monorail stent and a neurological protective device. Post-stent angiogram revealed satisfactory dilatation in the left carotid artery. One week later, CABG to the four vessels was done. Two months later, right carotid endarterectomy was done under local anaesthesia using superficial and deep cervical plexus blockade. He had not any neurological complication during or after any of the operations and he remains in good health since his last operation.
Conclusion: We think the staged treatment, consisted of carotid artery stenting plus coronary artery bypass grafting plus carotid endarterectomy, in a patient with concomitant severe coronary artery and bilateral carotid artery disease is feasible, safe and may be an alternative to combined coronary artery bypass grafting plus carotid endarterectomy.

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ATHEROSCLEROTIC RISK FACTORS ARE ALSO RISK FACTORS FOR AORTIC VALVE CALCIFICATION?
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Objective: Traditional risk factors for coronary artery disease have been shown to be associated with aortic valve disease in various studies. The objective of this study was to determine whether risk factors for atherosclerosis were associated with aortic valve calcification.
Methods: The study included 701 patients who underwent AVR between 1985-2005 in our institution. Patients were separeted in three groups based on the etiology of aortic valve disease (rheumatic, congenital bicuspid and degenerative). Congenital bicuspid aorta was present in 120 patients

(17.1%), rheumatic valve disease in 371 patients (52.9%) and degenerative aortic stenosis in 210 patients (30%). Diabetes mellitus, hypertension, cigarette smoking, hyperuricemia, hypercalcemia, hyperuricemia, high serum C-reactive protein levels (CRP) levels, presence of coronary artery disease and patient sex were analysed as risk factors for aortic valve calcification.
Results: Multivariate analysis revealed high serum CRP levels was related to calcification in patients with rheumatic and degenerative etiology ($P = 0.001$ and 0.003 respectively). Hyperlipidemia was linked to calcification only in patients with degenerative etiology ($P = 0.01$) and prevalance of coronary artery disease was significantly higher in patients with calcific aortic valves of degenerative etiology ($P = 0.01$). Sex, hypertension, smoking, hyperuricemia and hypercalcemia were not related to calcification.
Conclusion: Although most of the risk factors for coronary artery disease are not associated with increased risk of aortic valve calcification prevalance of coronary artery disease is higher in patients with calcific aortic valves of degenerative etiology and hyperlipidemia, a treatable factor, is related to increased risk of calcification. Association of high CRP levels with calcification in rheumatic and degenerative groups probably reflects the role of inflammatory processes upon calcification.

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MOLECULAR CHARACTERIZATION OF WNT/B-CATENIN SIGNALING PATHWAY AFTER MYOCARDIAL INFARCTION

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Objective: Myocardial infarction induces global changes in the ventricular architecture, a process called ventricular remodeling. Molecular mechanism behind this process still is not clearly identified. Since Wnt/ß-catenin signaling pathway involves in a variety of modeling and remodeling processes including cell proliferation, differentiation, apoptosis and the control of cell orientation. We assume that alterations in this pathway may be one of the mechanism explaining immediate response in infarct and remote zone after acute myocardial infarction.
Methods: Myocardial infarction was produced by coronary artery ligation of Wistar rats. Sham operation comprised surgical procedure without ligature placement. Following 30 min after operation, all animals were sacrificed, hearts were dissected and myocardial samples were obtained from remote and infarct zones. Tissue samples were immediately flash-frozen for RNA analysis. Total RNA was extracted and reverse transcribed. Aliquots of cDNA's were then amplified with oligonucleotide primers spesific for the target genes by semi-quantitative RT-PCR. Histopathological analysis was established on tissue samples to verify presence of ischemia in infarct zone.
Results: Optimization of the RT-PCR amplifications from Wnt 1, Wnt3a, Wnt5a, Wnt9a, axin, bcatenin, secreted Frizzled Related Protein (sFRP1), Dishelleved, Frz2, Frz4 and Frz6 genes were performed. Transcriptional alterations in the expression of these genes on the infarct zone and remote zone after myocardial infarction analysed.
Conclusion: These studies were including several animal and human models indicated the importance of wnt signal transduction pathway in myocardial infarction. In near future developing treatment modalities targeting wnt signal transduction pathway will open new insight.

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SERUM ADIPONECTIN LEVELS PREDICT EARLY ATHEROSCLEROSIS IN CAROTID ARTERIES IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS GRAFTING

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Objective: Adiponectin is a plasma protein produced specifically by adipose tissue. There is growing evidence that adiponectin has a protective effect against atherosclerosis and hypoadiponectinemia has been observed in patients with coronary artery disease (CAD). However, the relation between serum concentrations of adiponectin and early atherosclerosis in carotid and peripheral arteries in patients with CAD has not been determined yet. To determine this relation, we measured carotid artery intima-media thickness (IMT), ankle brachial index (ABI) and serum concentrations of adiponectin in the patients with CAD who underwent coronary artery bypass grafting (CABG).
Methods: Patients: eighty-four consecutive patients (69 male, mean age 60.81±10.59) with documented CAD who underwent CABG were included into the study. Laboratory analysis: the serum concentrations of adiponectin were measured in the fasting venous blood samples by ELISA (Human Adiponectin Elisa Kit ACRP30®, Linco Research, Missouri, USA). Carotid artery ultrasound: carotid artery IMT of far wall was measured at the distal common carotid artery and the carotid bulb on both sides with a high-resolution ultrasound unit (Apio80®, Toshiba, Tokyo, Japan) equipped with an 12-to-6-mHz broad-band linear transducer. Ankle brachial index: a sphygmomanometer cuff was placed around the ankle and inflated to a suprasystolic level, then slowly deflated. The onset of blood flow detected by doppler probe on the posterior tibial artery was accepted as the doppler ankle pressure. The ankle brachial index was calculated as a ratio of doppler ankle pressure to the brachial systolic pressure.
Results: The mean serum adiponectin concentration was 7.73±5.34 µg/ml. The mean carotid artery IMT were 0.97±0.13 mm and 1.01±0.14 mm at the distal common carotid artery and the carotid bulb level, respectively. The mean ABI were 1.11±0.17 and 1.10±0.15 on the right and the left side, respectively. Serum adiponectin concentrations significantly and negatively correlated with carotid artery IMT both at the distal common carotid artery ($r = -0.604$, $P<0.01$) and the carotid bulb level ($r = -0.571$, $P<0.01$). There were no significant correlation between serum adiponectin concentrations and ABI on the either sides.
Conclusion: This study showed that serum adiponectin concentrations predict early atherosclerosis in carotid arteries in patients with CAD. Adiponectin is one of the clinically important molecules associated with atherosclerosis and the measurement of plasma adiponectin level would be of predictive value to identify patients at high risk to develop severe carotid artery stenosis.

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OPERATIVE OUTCOME, EARLY DETECTION, AND PREVENTION OF COMPLICATIONS AFTER REPAIR OF ASCENDING AORTA FOR AORTIC ANEURYSMS AND DISSECTIONS

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Objective: Background: Aortic arch replacement is required to prevent aortic rupture. Most series over the past decades have reported mortality rates of 15 to 30% and high neurologic complications.
Methods: From January 2001 to April 2004, 100 consecutive patients underwent replacement of the ascending aorta. Depending on urgency of operation, the patients were categorized as elective (EL, $n = 81$) or emergent (EM, $n = 19$). The indication for surgery included aneurysm of ascending aorta in 56%, dissection in 27%, aneurysm of ascending aorta associated with endocarditis in 7%, with aortic stenosis in 6%, and with aortic valve insufficiency in 2%. Bicuspid valve was found in 10% of patients with aortic dissection and 40% of patients with endocarditis. The diagnostic studies included chest CT and echocardiogram. The male to female ratio was 2:1 and the average age was 60-years-old. The aortic diameter was 5.5 cm (range 3.0-8.4) in EL group and 6.1 cm (range 5.0-8.5) for EM group. In EL group only 15% and in EM group 79% of patients had aortic dissection, respectively.
Results: The overall 30-days mortality for EL group 0% and for EM group was 26%. The overall 6 months mortality was 8%; 3.7% and 26% in EL and EM groups, respectively. The overall renal failure requiring dialysis was 3%; 2.5% in EL and 5.3% in EM group. The overall postoperative pneumonia was 9%; 7.4% and 16% EL and EM groups, respectively. Overall CVA was 2%; in EL patients 0% and in EM patients 10.5%. CVA adverse event was defined as a new finding in head CT or neurologic deficit lasting >24 h. The overall cardiovascular complications were 45%. Sixteen percent of patients in EL group and 10.5% of patients in EM group had pericardial effusion prior to discharge from hospital, which required pericardiocentesis. The median length of hospital stay was 8 days in EL and 13 days in EM groups.
Conclusion: An elective repair of aortic aneurysm and dissection can be performed with 0% 30-day mortality and 0% neurologic adverse events, however, emergent operations are associated with high morbidity and mortality. An early intervention for aortic aneurysm with a diameter of less than 4.5 cm can improve the operative outcome drastically. Bicuspid valve is associated with aortic aneurysm and dissection more frequently than previously assumed. An echocardiogram shortly before discharge is recommended to

assess the size of pericardial effusion followed by pericardiocentesis as needed.

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INTRAVASCULAR LEIOMYOMATOSIS: THE SURGICAL CHALLENGE OF TUMORS WITH CAVO-ATRIAL EXTENSION

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Objective: Infradiaphragmatic tumors with intracardiac extension, although uncommon, are a surgical challenge. Our objective is to present one of these cases, comment the best strategies to deal with them and review the literature on the field in order to achieve good results.
Methods: A 44-year-old female, under anticoagulant therapy due to a suggestive echo image of inferior vena cava (IVC) thrombosis, is presented here. This finding was unexpected on a routine medical examination. The subsequent CT-scan and MRI showed an intraluminal occupation of the IVC, extended to the right atrium. An enormous mass, that seems to begin at the entrance of IVC into the heart, appeared on a new echocardiography. All these findings, and a previous history of uterine myomatosis, led to the diagnosis of intravascular leiomyomatosis. Surgery was carried on in a single procedure through simultaneous median laparotomy and sternotomy:first, a histerectomy was done (plus salpingo-ooforectomy); after this, extracorporeal circulation, profound hypothermia and circulatory arrest were achieved. Then, right atriotomy and intraabdominal cavotomy were necessary to dissect and remove the tumor in one single piece.
Results: The patient had an uneventful recovery and was discharged from the hospital on the 13th postoperative day. One and a half year later, she is asymptomatic and in perfect condition.
Conclusion: Different techniques have been proposed to treat tumors with cavo-atrial extension. Some authors advocate surgery in two separate times, maintaining that surgical risk increases in single procedures, sometimes due to excessive bleeding in heparinized patients. We understand, but not share, this affirmation. The extracorporeal circulation, with profound hypothermia and circulatory arrest, allows removal of the whole tumor at the time, in a bloodless operative field, and with minimal manipulation of the inferior vena cava and the heart. Finally, we think that removal of the tumor through the right atrium should be avoided in order to assure complete removal of the mass.

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BLOOD COAGULATION CHANGES IN PATIENTS TREATED WITH STENT ENDOGRAFTING SURGERY. ARE THERE CLINICAL IMPLICATIONS ?

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Objective: Changes in blood coagulation and fibrinolytic system after endovascular repair (EVAR) of aortic pathology are of great interest. We examine in a prospective study the risk for consumption coagulopaty and the clinical implications in a midterm follow-up.
Methods: From June 2002 to December 2003 31 patients for abdominal aortic aneurysm (AAA), 11 for thoracic aortic aneurysm (TAA) and 10 for cronic type B dissection underwent EVAR. Platelet count, fibrinogen, antithrombin III and prothrombin were assayed as markers of coagulation. Plasminogen, fibrin degradation products (FDP) and D-dimer were monitored as markers of fibrinolisys. The aortic diameter were assessed by computed tomography.
Results: Coagulation parameters significantly decreased on postoperative day 1 and 5. FDP and D-Dimer levels significantly increased, while plasminogen values significantly decreased, on postoperative day 1 and 5. All parameters recovered on 1th month follow up, except fibrinogen levels that showed a marked increase on month 1 and 6. We did not observe clinical complications related to coagulative disorders. There was no correlation between the preoperative diameter and the coagulative and fibrinolysis variations in the AAA and TAA group. Type B dissection patients showed a significant correlation between the preoperative presence of a large false lumen and a high level of fibrinolysis.
Conclusion: EVAR leads to changes in coagulation and fibrinolysis, with characteristic development. They have no clinical relevance and no effect on long-term follow-up. It is our belief that EVAR is the most satisfactory option for patients with a favorable anatomy and who are at high risk of hemorrhage.

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HYPERLIPIDEMIA AND AORTIC SCLEROSIS

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Objective: Hyperlipidemia has been found to be associated with aortic valve stenosis in many studies and disease has been found to resemble the inflammatory process of atherosclerosis. This study aims to investigate role of hyperlipidemia in a large cohort of patients with aortic stenosis with different etiological factors.
Methods: The study included 988 patients who underwent AVR between 1985-2005 in our institution. Patients were separeted in three groups based on the etiology of aortic valve disease (rheumatic, congenital bicuspid and degenerative) and patients with associated procedures were not excluded from the study. Congenital bicuspid aorta was present in 137 patients (13.9%), rheumatic valve disease in 632 patients (63.9%) and degenerative aortic stenosis in 219 patients (22.2%). Effects of hyperlipidemia and severe hyperlipidemia on aortic valve calcification and block aortic valve calcification were analysed for each etiologic groups.
Results: Both univariate and multivariate analysis revealed high serum cholesterol levels (200 mg/dl) was not related to calcification in all patients with aortic stenosis but was related to block calcification (P = 0.003). Hyperlipidemia was linked to calcification and block calcification in patients with degenerative etiology (P = 0.02 and P = 0.01 respectively) and was found to be related to the presence of block calcification in patients with congenital bicuspid aorta (P = 0.02). Other variables in the equation (ex, hypertension, smoking, hyperuricemia and hypercalcemia) were not related to calcification. Hyperlipidemia was not a risk factor for calcification in patients with rheumatic etiology (P = 0.3).
Conclusion: Hyperlipidemia is related to increased risk of calcification in patients with aortic sclerosis of degenerative and congenital etiology. Association of high cholesterol levels with severe calcification in congenital bicuspid aorta suggests an additive role of hyperlipidemia on hemodynamic factors for this patient group as well as for patients with degenerative etiology. The effect of antihyperlipidemic therapy on progression of aortic sclerosis needs to be investigated on clinical trials.

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DESCENDING AND THORACOABDOMINAL AORTIC ANEURYSM SURGICAL REPAIR WITH DISTAL FEMORO-FEMORAL PERFUSION TECHNIQUE

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Objective: Distal vital organ damage is an important problem during the repair of descending and thoracoabdominal aortic aneurysm. Surgical repair of descending and thoracoabdominal aortic aneurysm and/or dissection with femoro-femoral perfusion technique was retrospectively studied.
Methods: Between september of 2000 and january of 2005, 15 surgical interventions were done for 13 patients with femoro-femoral perfusion technique who were diagnosed as thoracoabdominal aortic aneurysm and/or dissection. 11 of our patients were female(15.4%). Mean age of our patients was 56.11 year (29-80). Twelve of our intervention (80%) were elective cases, and 3 of them (20%) were emergent ones. When proximal arterial and venous filling pressures were maintaned, distal perfusion arterial pressure was carried out at 60-70 mmHg and 1000-1500 ml/min. Rectal temperature was kept over 30-32 ºC. Patients were followed about 18.9 months (4-30).
Results: Four patients (26.6%) died at early phase. Respiratory problems were seen in 3 patients (20%), temporary renal dysfunction was seen in 3 patients (20%), paraplegia was seen in 1 patient (6.6%) and temporary paraparesiswas seen in 1 patient (6.6%).
Conclusion: After the aorta is occluded with cross-clamp, cardiac and cerebral damage are sen due to the hypertension at the proximal part of the aorta, and visceral ischemia is seen due to the hypotension at the distal part of the aorta. Surgical treatment of descending and thoracoabdominal aortic aneurysms is still disputatious all over the world. We believe that surgical repair with femorofemoral perfusion technique for protection of visceral organs and spinal cord will decrease the mortality and morbidity.

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EXTRA-ANATOMIC ASCENDING-TO-DESCENDING AORTIC BYPASS VIA RIGHT THORACOTOMY WITHOUT CARDIOPULMONARY BYPASS FOR COMPLEX RECOARCTATION OF THE AORTA

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Objective: The purpose of this report is to present an adult patient with complex re-coarctation of the aorta successfully treated by extra-anatomic ascending-to-descending aortic bypass via right thoracotomy without cardiopulmonary bypass.
Methods: 24-year-old male patient presented to our clinic with complaints including hypertension in upper extremities, fatigue and headache. He was previously operated in 2001 due to aortic coarctation via left thoracotomy with patch aortoplasty. Physical examination revealed absent femoral pulses and weak left upper extremity pulses. Right arm-lower extremities systolic pressure gradient was 100 mmHg. Thoracic computerized tomography demonstrated the hypoplasia of the aortic arch between left carotid and left subclavian artery. The patient was operated on without cardiopulmonary bypass under normothermia. A wide lateral right thoracotomy was accomplished. Descending thoracic aorta was palpated along the left side and posterior of esophagus. Mediastinal pleura at the right side of esophagus was dissected gently. Anterior and leftward retraction of esophagus revealed the descending thoracic aorta. A segment of descending thoracic aorta was exposed over a length of 7 cm. One pair of right intercostal arteries was ligated for exposure. Exposed descending aorta was side-clamped and incised. A 20 mm dacron tube graft was anastomosed to incision by 4/0 polypropylene suture. Pericardium was dissected and ascending aorta was exposed. Supracoronary ascending aorta was side clamped and incised. Proximal end of the graft was anastomosed to incision by 4/0 polypropylene suture. Pulsatile blood flow was palpated on the descending thoracic aorta at the distal of anastomosis. Operation was completed by draining the pericardium and right pleural cavities. A right thoracic drainage tube was inserted before closure.
Results: Postoperative period of the patient was uneventful. Systolic blood pressure about 130 mmHg was maintained with oral atenolol therapy. Postoperative blood pressure gradient between right upper extremity and lower extremities decreased to 10 mmHg. All upper and lower extremity pulses were palpable postoperatively. The patient was discharged at the 8th postoperative day with oral atenolol therapy and without any complication. Thoracic computerized tomography at postoperative 8th day confirmed the patency of ascending-to-descending aortic bypass graft.
Conclusion: Our successful experience with this patient contributes at attracting the surgeons' attention to extraanatomic ascending-to-descending aortic bypass via right thoracotomy which is a safer, less invasive and effective method for correction of the complicated forms of aortic coarctation and re-coarctations.

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ENDOTHELIAL STATUS FOLLOWING CORONARY ARTERY REVASCULARIZATION WITH CARDIOPULMONARY BYPASS IN THE EARLY POSTOPERATIVE PERIOD

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Objective: Vascular endothelium actively participates in maintaining normal cardiovascular homeostasis, regulating membrane permeability, vasomotor tone, coagulation/fibrinolysis balance, and leukocyte mobilisation. Cardiopulmonary bypass (CPB) initiates a systemic inflammatory response, which may affect endothelial function. Monitoring, the levels of endothelial cell activation markers, including tetranectin (TN) a fibrinolytic regulator known to be negatively associated with coronary artery disease severity, the present study addresses to evaluate endothelial function, in the early post-CPB period.
Methods: The study was conducted in 31 consecutive patients, who underwent elective, standard coronary revascularization. Redo's, patients with seriously impaired L.V. function, recent M.I. or PTCA, were excluded. Cold blood cardioplegia was used. Peripheral blood samples were collected on the morning of operation before induction of anaesthesia, the 1st and the 3rd day postoperatively. The plasma levels of von Willebrand factor (vWF), P- and E-selectin, and TN were measured using enzyme-linked immunoabsorbend assay while angiotensin converting enzyme (ACE) activity was measured spectrophotometrically. The data were analyzed in a two-way ANOVA mixed model. The results were corrected for hematocrit.
Results: A significant overall effect of time was observed for all the examined variables (vWF; $P<0.0005$, P-selectin; $P = 0.05$, ACE; $P = 0.015$, E-selectin; $P<0.0005$ and TN; $P = 0.019$). vWF was significantly increased on the 1st and decreased on the 3rd postoperative day compared with baseline levels ($P<0.0005$, $P<0.0005$, respectively). Subsequent analyses revealed a trend towards higher P-selectin on the 1st and a significant decrease on the 3rd postoperative day compared with baseline levels ($P<0.048$). Moreover, a significant decrease in ACE activity the 3rd postoperative day compared with baseline activity ($P = 0.010$) was found and a significant decrease in E-selectin levels the 3rd day compared with baseline and 1st day levels ($P<0.0005$, $P<0.0005$, respectively). A significant increase of TN levels on the 3rd day compared with baseline and 1st day levels ($P = 0.04$, $P = 0.05$, respectively) was also found.
Conclusion: We concluded that CPB with hypothermic cardiac arrest induces a transient and moderate endothelial injury and/or activation revealed by higher vWF and P-selectin levels. The later are accompanied by a concomitant increase of the fibrinolytic regulator tetranectin in an effort homeostasis between coagulation and fibrinolysis to be restored. The continuously elevated TN levels in conjunction with the significant lowering of vWF, P-selectin, E-selectins and ACE activity observed at the third postoperative day were indicative of a trend endothelium to re-gain its protective role.

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ENDOVASCULAR TREATMENT OF DISTAL AORTIC ARCH ANEURYSM

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Objective: Endovascular grafts have been popular for the treatment of aneurysms for patients to whom conventional surgical methods could bring high mortality and morbidity. Nowadays, with the increasing experience and refinements in the graft technology, they are frequently performed for the aneurysms of critical segments of the aorta, such as thoracic and arch levels. Here, we present a patient who has been treated with an endovascular graft for the mycotic saccular aneurysm located just below the left subclavian artery.
Methods: A 38-year-old male patient presented with hoarseness to the haematology clinic where he had been treated for all. He was a retired soldier. There was ankylosing spondilitis and chronic hepatitis B infection in his history. He had been a treated cocaine addict.
Results: Chest X-ray showed an unusual opacity on the left upper margin of sternum (Figure 1). Laryngeal examination revealed vocal cord palsy. The pathology was further analyzed with spiral CT and scans showed a saccular aneurysm located at the distal aortic arch (Figure 2a-b). Aneurysm was treated with endoluminal stenting (Figure 3a-b). Control CT scans demonstrated correct graft positioning, majorly thrombus formation inside the aneurysm sac with minimal retrograde flow from the subclavian artery (Figure 4). Postoperative 3 months MR angiography showed no flow and total thrombus formation inside the aneurysm (Figure 5a-b).
Conclusion: Especially for high-risk patients, endoluminal treatment for mycotic aneurysms and for the aneurysms located at the critical segments of aorta is an attractive alternative procedure to the conventional open surgery. In order to assess the feasibility endovascular grafts for aortic aneurysms and increase the experience of their usage at the critical segments of the aorta, further information and long-term follow up results of similar studies are needed.

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INTRA AORTIC BALLOON COUNTERPULSATION IN CARDIOMYOPATHY PATIENTS: BRIDGE TO TRANSPLANTATION OR VENTRICULAR ASSIST DEVICE

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Objective: Each year a number of patients with end stage heart failure exceed the available heart transplant supply. Ventricular assist devices (VAD) are extremely expensive and the operative procedure required for implantation has inherent risks of its own. Intra Aortic Balloon Pump (IABP) Counterpulsation could be a simple and effective tool, for a support of failing adult heart until recovery, transplantation or implantation of ventricular assist device.

Methods: We analysed 10 patients with dilated cardiomyopathy, listed for heart transplantation or implantation of VAD, receiving pre-operative IABP and included in Benchmark counterpulsation registry, between September 2004 and December 2005. We reviewed demographic data, heart function prior IABP and evaluated hemodynamic changes after insertion of IABP, effects of IABP support on organ function (renal and hepatic), frequency of complications and clinical outcomes.
Results: The duration of IABP insertion ranged from 3 to 30 days (mean 9.67±8.02). Hemodynamic improvement was obvious in 30-60 min after IABP insertion. Mean systemic arterial pressure increased from 75.7±9.32 to 83.9±7.4 mmHg Both the mean pulmonary artery and pulmonary arterial wedge pressures decreased from 54.0±10.047 ($P = 0.09$) to 42.6±7.71 mmHg, and from 30.2±17.7 to 16.6±5.6 mmHg respectively. There was a decrease of central venous pressure from 11.1±9.2 to 9.1±6.6 mmHg. Echoscopic examination showed an improvement of left ventricular ejection fraction from 14.5±6.4 to 18.5±8.9%. After IABP insertion, there was a drop in daily need of diuretics, serum creatinin decreased from 146.7±53.0 to 121.8±48.3 mmol/l, during first 48 h. As well there was a decrease of urea level from 15.01±6.8 to 11.4±5.1 mmol/l. Three patients showed significant hemodynamical improvement after insertion of IABP. They were successfully weaned off the balloon, recovered without additional interventions and were discharged from hospital. Two patients were successfully transplanted. Four patients were supported with IABP until implantation of Berlin Heart ventricular assist device. There was no incidence of infection, limb ischemia, thrombus, or embolic complications.
Conclusion: Our data, showed that intraaortic balloon pump support may be successfully and safely used in end-stage heart disease, as an urgent measure of cardiac support, ensuring the stable patient condition, improving organ perfusion and giving the necessary time for therapeutically decision making. Full evaluation of IABP support requires further studies and larger group of patients.

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ALTERNATIVE VENOUS GRAFT PREPARATION PROCEDURES FOR THE SURGICAL TREATMENT OF THE SUPERIOR VENA CAVA SYNDROME

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Objective: Alternative saphenous vein graft harvesting methods for surgical treatment of SVC syndrome were performed in the same patient and patency ratio's were evaluated.
Methods: 34-years-old man referred to our hospital with SVC syndrome. Venography revealed occlusion of the SVC, innominate and right subclavian vein. At the operation proximal part of the SVC, innominate vein, left subclavian vein, distal part of the internal juguler vein were seen occluded. One of the saphenous veins harvested as a classical spiral graft with 8-10 cms long and 1.5-2 cms width. The other saphenous vein cutted longitudionally and sutured over forming a bit longer and narrow graft. This graft anastomosed to the right axillary vein and spiral graft anastomosed to the innominate vein.
Results: After an uneventful postoperative period he was discharged on the 7th day. At the first month, control venography revealed occlusion of the spiral graft and patent longitidunal graft. Endovascular recanalization attempt of the occluded graft was unsuccessful. At the 6th month, control CT venography revealed occlusion of the longitudinal graft.
Conclusion: Superior vena cava syndrome occurs 80-90% from malignancies and 10-20% from benign etiologies. Mediastinal fibrosis is the most common benign etiology. Patients that are not suitable for endovascular therapy are treated with surgery. Although autolog saphenous vein grafts are diameterly most suitable graft material for innominate, jugular or subclavian vein systems, the long preparation time, restricted length and increased thrombogenicity due to possible endothelial disruption are disadvantages. Especially this effect is more prominent in the spiral grafts. Grafts that are prepared with longitudinal cutting may be occluded less frequently due to less endothelial disruption and shorter foreign body interaction time and longer grafts may be prepared shortly. These suggestions are in correlation with our case. Spiral graft usage is frequent so the results are reported as good in the literature. Longutidunal graft preparation is rare in the literature so the comparison will be meaningfull when the numbers are adequate. Diameter of the spiral graft may be larger than the longitudinal grafts, but because of the narrower diameter the flow velocity may be higher in the longitudinal grafts. Spiral grafts mostly used between right atrium and innominate vein where external hematoma compression is common. Saphenous grafts patency may be improved if the graft is covered with prosthetic graft to protect it from external hematoma compression.