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Letters to the Editor

Central venous catheter insertion: a bedside procedure for haematological patients

To the Editor:

The present management of onco-haematologic patients may require continuous infusion of cytotoxic drugs, use of drugs or concentrated ion solutions which are toxic for the endothelial wall of small vessels, infusion of large amounts of antibiotics or antimycotics, red blood cell and platelet transfusion, and not rarely parenteral nutrition. Such a complex therapy needs a vascular access by a central vein catheter (CVC) insertion. Many types of CVC are available at present: tunnelled Hickman or Hickman-like catheters, subcutaneous ports, tunnelled catheters with Groshong valve, external untunnelled catheters. A number of difficulties or complications may hamper CVC usage, including catheter dislodgement, pneumothorax, catheter-related infections and venous thrombosis (1–3). Untunnelled CVC insertion by staff physicians before starting intensive chemotherapy or a pre-transplant conditioning regimen increases the speed of preparative procedures by avoiding possible delay due to surgeon, anaesthesist and theatre availability. A medical staff-specific training is needed in order to acquire the proper dexterity for rapid and optimal insertion. From 1986 to 1994, 173 untunnelled heparin-coated Vialon CVC (Becton-Dickinson) were inserted by the Seldinger technique in 137 haematological or oncological patients (60 males and 77 females) suffering from AML (68), ALL (25), CML-BP (21), NHL (7), other disease (16); mean age was 42.5 years (range 13–74). Single lumen CVCs were used for patients with lymphoma, double lumen for patients with acute leukemia and triple lumen for patients to be transplanted. 20 patients had more than one insertion (from 2 to 4). Even in the presence of severe thrombocytopenia, CVCs were inserted without platelet transfusion. All insertions were carried out as a bedside procedure by subclavian vein puncture with local anaesthesia; whenever possible, the left side was preferred. Chest X-ray was routinely carried out after CVC application. There were two insertion failures (both sides tried), probably due to anatomical anomaly. In 2 patients, a severe brachialgia occurred, probably due to a brachial syndrome; in one patient the pain was severe, persistent and resistant to pharmacological therapy, and CVC had to be removed. Pneumothorax occurred in 4 patients (2.9%), 3 of whom required treatment, and resolved within a week. 2 patients with advanced acute leukaemia had haematoma around the insertion point. In other thrombocytopenic patients, exit-point minor haemorrhage resolved by local prolonged compression and/or ice application. Prolonged bleeding was observed in a patient with consumption coagulopathy. In 5 patients the catheter was involuntarily inserted in the internal jugular vein; in 3 of them it was repositioned in the anonymous trunk or in the right atrium under X-ray imaging. In 12 patients (8.7%) we observed fever classifiable as catheter-related infection, a prevalence lower than reported in other studies (4–6). Positive microbiological culture was obtained in 5 cases: 2 from blood samples collected from CVC and 3 from the tip after catheter remotion. Microbiological species were: *Enterobacter cloacae* ($n = 1$), *Staphilococcus aureus* ($n = 2$) and *Staphilococcus epidermidis* ($n = 2$). In the cases with negative microbiological culture, catheter removal was effective in 2 and ineffective in 3; in 2 patients the fever disappeared with empiric antibiotic therapy (ceftriaxone and teicoplanin). CVC lumen was washed three times a week with a 0.9% sterile NaCl solution containing 50 UI/ml sodium heparin. Lumen obstruction was treated with 5 ml of 0.9% NaCl solution containing urokinase 5000 UI. In a few cases CVC obstruction could not be resolved by heparin or urokinase treatment. Median CVC duration time was 3 months (range 10 d to 5 months). In patients who needed CVC replacement (malfunction, obstruction, duration time > 5 months) the procedure was easily carried out employing the "J" tip guidewire, with the exception of cases with suspected catheter-related sepsis, in whom a new catheter was inserted on the opposite side. We conclude that untunnelled catheters are an excellent option for oncohaematological patients because of rapid and less traumatic bedside insertion, low incidence of infection and obstruction and easy replacement when required.

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