AUTOHAEMOTRANSPLANT ASSAY IN TORPEDOES AFTER TOTAL-BODY IRRADIATION

A. Pica, L. Cristino, **F. Della Corte**, S. Sasso[1] , P. Guerriero[1]

Department of Evolutionary and Comparative Biology, University of Naples "Federico II". [1]Institute of Radiological Sciences of Faculty of Medicine, II University of Naples

Elasmobranch lack bone marrow and produce blood cells in lymphomyeloid tissues located in the oesophageal wall and in the epigonal tissue of the gonads and a erythrothrombolymphopoietic tissue in the spleen. A total-body irradiation has been performed in order to destroy the haemopoietic tissues, after drawing and conserving the blood, in sterile syringe containinig SAGM-CPD solution (2:1 of blood) at 4°C. Ten *Torpedo marmorata* Risso (from 250 to 800g in weight) have been irradiated with photons of a 6MV linear accelerator, at an irradiation rate of about 2 Gy/min. Six specimens have received total doses each of 40Gy, 50Gy, 122Gy, 132 Gy, 137Gy and 147Gy in order to determinate the subletal dose. The total dose has been fractionized in three irradiations on the 1st, 30th and the 45th day and after 36 hrs from each irradiation and every 7 days, the haematological parameters have been evaluated. Four specimens have received a single irradiation of 120 Gy and after 6 days the autohaemotransplant has been performed in three of them. The specimen irradiated but not autohaemotransplanted has died 7 days after the irradiation, the three specimens irradiated and autohaemotransplanted with 5 ml of blood-SAG M-CPD solution, have died after 10 days from the irradiation. In all the specimens the haematological values have decreased after the irradiation: the RBC from the average normal value of 300000/µl down to 30000/µl; the WBC from 20000-30000/µl down to 2000/µl; Hb from 5g/dl down to 0.2 g/dl; Ht from 25-30% down to 3 %. On the histological observation of the haemopoietic tissue after irradiation, the spleen displayed a reduction in volume and the white pulp appeared to be half dissolved and flooded with blood; only a few damaged lymphocytes surrounded the ellipsooidal blood vessels; a conspicuous number of picnotic nuclei were scattered all over the tissue. The lymphomyeloid tissues too presented a reduction in volume and contained a great number of damaged cells, an injured connective and a total disappearing of myeloid cells. In the imprints, the residual cells displayed damaged nuclei and many filaments of dispersed chromatin.

The haemopoietic tissues of the autohaemotransplanted specimens, displayed some clusters of cells in progressive maturative stages surrounding the endothelial wall off the blood vessels and some cells in mitosis.

In conclusion, although these animals died after 3 days from the autohaemotransplant, the beginning of a reimplantation and of cell proliferation has been clearly noticed.

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