STRUCTURAL FEATURES OF BONE MARROW AUTOGRAFT IN RABBIT

C. Cătoi, A.I Baba

Faculty of Veterinary Medicine, 3-5 Manastur Street, 3400 Cluj-Napoca, ROMANIA,

Key words: marrow, autograft, stem cell, rabbit.

SUMMARY

Mature stem cell implantation in a damaged tissue inducts his recovery, morphologic and functional identical with original tissue, by stem cell differentiation and by activating the cells division. The porpoise of this study is to assimilate the ingathering technique of (1) haematogenous bone marrow harvesting, washing and implantation in a healthy tissue, structurally and functionally different (abdominal wall, retroperitoneal space), and (2) the study of post implant tissue evolution and tissue evolution of medullar transplant.

Research was made in a 10 rabbits, common raise, 5 month aged. The harvesting of haematogenous marrow was made from proximal diaphysis of tibia. Medullar aspirated was inoculated retroperitonealy in the same plan with the kidney, parallel with abdominal aorta and in the abdominal wall, in the muscle. The rabbits were sacrificed after 3 days, 7 days and after one month; the tissue with bone marrow implant was collected for histology. Macroscopically, after 3 days of inoculation, retroperitoneal and the abdominal wall nodules with 0.5 – 1 cm diameter was observed, with a diffuse hemorrhagic infiltrate around. At 7 days the nodules was gray-greenish, without any inflammatory reaction around. Around the implantation nodules was remarked the presence of numerous arterioles and small veins. At one month after implantation nodules was not observed anymore; also the absence of fibrosis or additional vascularisation made impossible to observe the implantation area. The histology indicate that marrow autologus implant remain viable a period of time, and do not induce necrosis or inflammation in host tissue and recruit blood vessels from surrounding area. In the central area of larger implants an involution is producing by apoptosis. At the periphery medullar tissue remain viable at least 7 days and the vessels are coupling with local capillaries. All haematopoietic lines are present, proliferative, with differentiation, at 3 and 7 days. The regression is producing by atrophy and apoptosis, and the stroma becomes the prominent. The stroma takes a lax aspect and the cells have a myofibroblastic feature and do not produce collagen fibers. The fibrosis absence and involution by apoptosis are elements that explain the miss of implanted bone marrow medulla and ad integrum healing that produced in 1 month from the implantation. In one sample harvested from retroperitoneal space, where had been made the implant, was present a low differentiated cells population. These cells have the same morphologic aspect with stem cells.