

## CHONDROGENIC CELLS VERSUS BONE MARROW-DERIVED MESENCHYMAL STEM CELLS IN TREATMENT OF INDUCED OSTEOARTHRITIS IN THE KNEE JOINT OF MALE ALBINO RAT

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Irrespective to injury type, the intrinsic capacity of cartilage to repair cartilage lesion is poor. The repair of chondral injuries is a very important problem and a subject of many experimental and clinical studies. The utility of stem cell therapy in treatment of osteoarthritis is under investigation. The aim of the present study is to compare the efficacy of native mesenchymal stem cells and chondrogenic cells in treatment of induced osteoarthritic joint of rats. The mesenchymal stem cells from rat marrow were isolated, cultured and *in vitro* differentiated to chondrogenic cells using TGF- $\beta$ 3. Osteoarthritis was induced by mechanical scratching of the articular cartilage of the knee joint of 30 adult male albino rats, which were divided to 3 groups. The first exposed to intra-articular injection of MSCs, the second received chondrogenic cells, while the third was reserved as control. The evaluation of cartilage repair was performed after 6 weeks of transplantation by staining the histological sections of the treated knees by hematoxylin-eosin, toluidine blue and Safranin O. Histological grading was used to evaluate the quality of the reparative tissue. Results showed that in the chondrogenic treated group, there was evidence of marked regeneration of the articular cartilage in larger number of specimen than in MSCs-treated group, and the quality of the reparative tissue was significantly higher. In the control group degenerative changes was evident without any signs of repair. In Conclusion, local delivery of chondrogenic cells to osteoarthritic joint is better than MSCS in stimulation of regeneration of articular cartilage.

**Keywords:** Cartilage, Chondral injuries, Osteoarthritic, Hondrogenic

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