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Examine the effect of intra- articular injection of Bone Marrow Mesenchymal Stem Cells (BM-MSCs) and Chondrogenic Differentiated Mesenchymal Stem Cells (CD- MSCs) on the repair of articular cartilage defects in rabbits

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The present study was performed to examine the effect of intraarticular injection of bone Marrow Mesenchymal Stem Cells (BM-MSCs) and Chondrogenic Differentiated Mesenchymal Stem Cells (CD- MSCs) on the repair of articular cartilage defects in rabbits. Twenty-five adult female Baladi rabbits were used in this work. 5 rabbits were used for the preparation of Bone Marrow Mesenchymal Stem Cells (BM-MSCs) and their left knees were not subjected to the surgical procedure and used as normal control group. The remaining twenty rabbits were subjected for surgically induced cartilage defects in their left knees through a small medial para-patellar incision using bone curette. In the next day, the rabbits were divided into four groups: group I who were not injected intra-articularly, group II injected intra-articularly by a single dose of saline, group III injected intra-articularly by a single dose of BM-MSCs and group IV injected intra-articularly by a single dose of CD-MSCs. After 8 weeks from the time of intra-articular injection. On time the rabbits were sacrificed and the entire knee joints were excised and examined. Groups I and II showed marked degenerative changes in their articular cartilage. The articular surface healed by fibrocartilage in group III, while in group IV the articular surface healed by hyaline cartilage. Treatment by CD-MSCs promotes a better healing effect on the articular cartilage defects of injured knee joints in rabbit's model and has a remarkable superiority of repair than BM-MSCs. This can prevent the progress of cartilage defect into osteoarthritis which was a harmful disease.

Biography

Heba Arakeep is an Assistant Professor of anatomy and embryology, faculty of medicine, Tanta University, Egypt. She has a rich experience in different research methods (light microscope, electron microscope, histological stains, immunohistochemical stains, morphometric study by image analyzer). She has accredited certification in stem cell researches and techniques & more.

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