

عنوان مقاله:

Polyurethane/Hydroxyapatite Induces MSCs towards Osteo-like Cells in a Similar Fashion to Demineralized Bone Matrix

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خلاصه مقاله:

Osteoarthritis (OA) is the single most prevalent disorder in older adults having a predicted value of 130 million patients in 2050. Several clinical chemotherapeutic approaches are being applied to treat early or late osteoarthritis. It has been recommended that autologous mesenchymal stem cells (MSCs) from OA patients could be the gold standard to treat OA as these cells have high proliferation and chondrocyte lineage differentiation potential. In this work, human MSCs, derived from adipose tissue (Ad-MSCs), loaded on Polyurethane/Hydroxyapatite (PUHA) and Demineralized Bone Matrix (DBM) and their proliferation, differentiation capabilities were determined by MTT assay and Alizarin Red S staining and the expression of mRNA into osteoblast lineage were determined using Real Time PCR. The result showed that MSCs were more viable on PUHA when compared with DBM and the expression of lineage specific markers showed that differentiation potential of PUHA and DBM was not much different. The osteoblast lineage cells were stained positively with Alizarin Red S in completely similar in both groups. Electron microscopy analysis indicated attachment of Ad-MSCs when cultured on the PUHA and DBM. It was concluded that PUHA can be used in clinics as Osteo-inductive scaffold to treat OA easily, however further investigations are required before moving to clinical studies.

کلمات کلیدی:

Demineralized Bone Matrix, Osteoarthritis, Osteo-like Cells, Polyurethane/Hydroxyapatite

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