

Intra-articular injection of autologous mesenchymal stem cells in six patients with knee osteoarthritis. Emadedin M1, Aghdami N, Taghiyar L, Fazeli R, Moghadasali R, Jahangir S, Farjad R, Baghaban Eslaminejad M. *Arch Iran Med.* 2012 Jul;15(7):422-8.

Abstract

BACKGROUND:

Osteoarthritis (OA) is a progressive disorder of the joints caused by gradual loss of articular cartilage, which naturally possesses a limited regenerative capacity. In the present study, the potential of intra-articular injection of mesenchymal stem cells (MSCs) has been evaluated in six osteoarthritic patients.

METHODS:

Six female volunteers, average age of 54.56 years, with radiologic evidence of knee OA that required joint replacement surgery were selected for this study. About 50 ml bone marrow was aspirated from each patient and taken to the cell laboratory, where MSCs were isolated and characterized in terms of some surface markers. About $20-24 \times 10^6$ passaged-2 cells were prepared and tested for microbial contamination prior to intra-articular injection.

RESULTS:

During a one-year follow-up period, we found no local or systemic adverse events. All patients were partly satisfied with the results of the study. Pain, functional status of the knee, and walking distance tended to be improved up to six months post-injection, after which pain appeared to be slightly increased and patients' walking abilities slightly decreased. Comparison of magnetic resonance images (MRI) at baseline and six months post-stem cell injection displayed an increase in cartilage thickness, extension of the repair tissue over the subchondral bone and a considerable decrease in the size of edematous subchondral patches in three out of six patients.

CONCLUSION:

The results indicated satisfactory effects of intra-articular injection of MSCs in patients with knee OA.