

Treatment of knee osteoarthritis with autologous mesenchymal stem cells: a pilot study.

Orozco L1, Munar A, Soler R, Alberca M, Soler F, Huguet M, Sentís J, Sánchez A, García-Sancho J. *Transplantation*. 2013 Jun 27;95(12):1535-41

Abstract

BACKGROUND:

Osteoarthritis is the most prevalent joint disease and a frequent cause of joint pain, functional loss, and disability. Osteoarthritis often becomes chronic, and conventional treatments have demonstrated only modest clinical benefits without lesion reversal. Cell-based therapies have shown encouraging results in both animal studies and a few human case reports. We designed a pilot study to assess the feasibility and safety of osteoarthritis treatment with mesenchymal stromal cells (MSCs) in humans and to obtain early efficacy information for this treatment.

METHODS:

Twelve patients with chronic knee pain unresponsive to conservative treatments and radiologic evidence of osteoarthritis were treated with autologous expanded bone marrow MSCs by intra-articular injection (40×10^6 cells). Clinical outcomes were followed for 1 year and included evaluations of pain, disability, and quality of life. Articular cartilage quality was assessed by quantitative magnetic resonance imaging T2 mapping.

RESULTS:

Feasibility and safety were confirmed, and strong indications of clinical efficacy were identified. Patients exhibited rapid and progressive improvement of algofunctional indices that approached 65% to 78% by 1 year. This outcome compares favorably with the results of conventional treatments. Additionally, quantification of cartilage quality by T2 relaxation measurements demonstrated a highly significant decrease of poor cartilage areas (on average, 27%), with improvement of cartilage quality in 11 of the 12 patients.

CONCLUSIONS:

MSC therapy may be a valid alternative treatment for chronic knee osteoarthritis. The intervention is simple, does not require hospitalization or surgery, provides pain relief, and significantly improves cartilage quality.