

Mesenchymal stem cells show promise for torn meniscus

December 22 2016



(HealthDay)—Undifferentiated autologous mesenchymal stem cells

(MSCs) seeded onto a collagen scaffold (MSC/collagen-scaffold) shows promise for patients with torn meniscus, according to a study published online Dec. 15 in *Stem Cells Translational Medicine*.

Michael R. Whitehouse, M.B., Ch.B., from the University of Bristol in the United Kingdom, and colleagues translated the previously described use of MSC/collagen-scaffold to integrate meniscal tissues in vitro for use as a cell therapy for [patients](#) with torn meniscus. An ovine-MSC/collagen-scaffold was tested in a sheep meniscal cartilage tear model after in vitro optimization. A single-center first-in-human safety study was then conducted in patients with an avascular meniscal tear. The authors isolated autologous MSCs from an iliac crest bone biopsy and seeded them into the collagen scaffold. The resulting human MSC/collagen-scaffold was placed into the meniscal tear in five patients.

The researchers observed promising results for the ovine-MSC/collagen-scaffold after 13 weeks, but the repair was not sustained over six months. In the human study, there was significant clinical improvement on repeated measures analysis. At 24 months, three patients were asymptomatic with no [magnetic resonance imaging](#) evidence of recurrent tear; knee function scores demonstrated clinical improvement. Subsequent meniscectomy was required by two patients due to re-tear or nonhealing about 15 months after implantation. There were no other adverse effects reported.

"We conclude that undifferentiated MSCs could provide a safe way to augment avascular meniscal repair in some patients," the authors write.

Several authors disclosed financial ties to Azellon, which partially funded the study.

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Citation: Mesenchymal stem cells show promise for torn meniscus (2016, December 22)
retrieved 6 May 2024 from

<https://medicalxpress.com/news/2016-12-mesenchymal-stem-cells-torn-meniscus.html>

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