

ACI shows added pain relief, function after failed cartilage repair

The study included patients with large femoral defects and modified Cincinnati Scores of ≤ 5 .

by **Gina Brockenbrough**

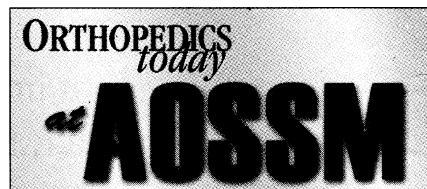
ORTHOPEDICS TODAY STAFF WRITER

CALGARY—Autologous chondrocyte implantation may provide significant and lasting improvements in pain relief and function in patients who failed other treatments for full-thickness femoral cartilage defects.

In a prospective, multicenter study of patients who failed cartilage treatments other than autologous chondrocyte implantation (ACI) and then subsequently underwent ACI using Carticel autologous cultured chondrocytes (Genzyme), the investigators determined that the ACI procedure was

successful in 76% of patients. They also found statistically significant improvements in Short Form-36 (SF-36), Knee Injury and Osteoarthritis Outcome Score (KOOS), and overall condition measured by the modified Cincinnati Knee Rating Scale over baseline during the 4-year follow-up period.

“Patients with large, symptomatic cartilage defects after failing previous treatment can expect sustained and clinically meaningful improvement in pain and function following ACI,” **Brian J. Cole, MD, MBA**, told ORTHOPEDICS TODAY. Cole presented his data at the American



Orthopaedic Society for Sports Medicine 2007 Annual Meeting, held here.

A mean of 2 surgeries

The study included 154 patients who failed previous non-ACI treatment for full-thickness femoral cartilage defects and had a modified Cincinnati score of equal to or less than five. The group included 104 patients with single defects and 50 with multiple defects.

The average defect size was 4.63cm². The patients had a mean

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ACI

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of 2 surgeries prior to ACI which included debridement, microfracture and osteochondral autograft.

Researchers excluded patients with full-thickness lesions of the patella or tibia, uncorrected ligament deficiency or malalignment, or total meniscectomy.

Patients were assessed every 6 months over 4 years – 126 completed the protocol and 28 discontinued early with a mean follow up of 45.3

months. The investigators defined success as improvement over baseline scores and termed failure as complete graft delamination, or a revision cartilage repair procedure that violated the subchondral bone or required a repeat ACI, or failure of the modified Cincinnati score to improve over three consecutive 6-month intervals.

The study revealed a mean improvement from 3.05 points preop to 4-year postop in Cincinnati score and a mean improvement of 41.1 points in the VAS score.

The SF-36 also showed a mean



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— Brian J. Cole, MD, MBA

increase of 11.4 points. Similarly, the mean KOOS scores for symptoms, sports and recreation, knee quality and activities of daily living rose 19, 30, 31.3 and 22.4 points, respectively. The investigators also found

that 49% of patients underwent subsequent surgical procedures irrespective of relationship to ACI. The most common procedures that were ACI-related mainly involved hypertrophy and arthrofibrosis.

The bottom line: ACI may help some of the most challenging patients



Cost relationship

“It’s a fact that you are taking a really challenging group that has failed other treatments, almost two surgeries per patient before they had ACI, and the majority of which were considered to be successful with meaningful clinical improvements [after ACI],” Cole said.

With the cost of cells reaching \$25,000, Cole noted that on the surface, ACI is comparatively more expensive than other cartilage restoration treatments.

However, he said that other costs should also be factored into the cost-benefit ratio.

“There is a cost to being out of work, a cost related to the patient’s impairment and several other non-procedure-related liabilities,” he said. “If you just look at the cost of the technology, that doesn’t cover the whole story. If you are able to get someone back to a high level of function, there are overall cost savings involved in shortening the duration of time that they are impaired. In fact, most health plans now have policy covering ACI and there is a recognition of these benefits and the clinical effectiveness for appropriately selected patients.”

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For more information:

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■ Reference:

Cole BJ, Brewster R, DeBerardino T, et al. Improvement in symptoms and function after autologous chondrocyte implantation (ACI, Carticel) in patients who failed prior treatment, results of the study of treatment of articular repair (STAR). Presented at the American Orthopaedic Society for Sports Medicine 2007 Annual Meeting. July 12-15, 2007. Calgary.