AUTOLOGOUS CHONDROCYTE IMPLANTATION FOR FULL THICKNESS ARTICULAR CARTILAGE DEFECTS OF THE KNEE

Vasiliadis Haris S, Wasiak Jason

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A B S T R A C T

Background

Treatments for managing articular cartilage defects of the knee, including drilling and abrasion arthroplasty, are not always effective. When they are, long-term benefits may not be maintained and osteoarthritis may develop. An alternative is autologous chondrocyte implantation (ACI), the surgical implantation of healthy cartilage cells into the damaged areas.

Objective

To determine the efficacy and safety of ACI in people with full thickness articular cartilage defects of the knee.

Criteria for considering studies for this review

We searched the Cochrane Bone, Joint and Muscle Trauma Group Specialised Register (14 January 2011), the Cochrane Central Register of Controlled Trials (The Cochrane Library 2010, Issue 4), MEDLINE (1948 to January Week 1 2011), EMBASE (1980 to Week 1 2011), SPORTDiscus (1985 to 14 January 2011), the WHO International Clinical Trials Registry Platform (26 January 2011), and Current Controlled Trials (26 January 2011).

Selection criteria

Randomised and quasi-randomised trials comparing ACI with any other type of treatment (including no treatment or placebo) for symptomatic cartilage defects of the medial or lateral femoral condyle, femoral trochlea or patella.

Data collection and analysis

Review authors selected studies for inclusion independently. We assessed risk of bias based on adequacy of the randomisation and allocation concealment process, potential for selection bias after allocation and level of masking. We did not pool data due to clinical and methodological heterogeneity.

Main results

Six heterogeneous trials were identified with 442 participants. Methodological flaws of the included trials included incomplete follow-up and inadequate reporting of outcomes. Three trials compared ACI versus mosaicplasty. One reported statistically significant results in favour of ACI at one year in the numbers of people with 'good' or 'excellent' functional results. Conversely, another trial found significant improvement for the mosaicplasty group when assessed using one functional scoring system at two years, but no statistically significant differences based on two other scoring systems. A third trial found no difference between ACI and mosaicplasty, 10 months on average after the surgery.

Authors' conclusions

There is insufficient evidence to draw conclusions on the use of ACI for treating full thickness articular cartilage defects in the knee. Further good quality randomised controlled trials with long-term functional outcomes are required.