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Long-term results with ACI in Slovenia

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Objectives:

152 patients have been treated by the implantation of autologous chondrocytes in the knee (different techniques) between the years 1996-2007. This presentation includes a prospective analysis of 61 patients with a follow-up of more than 5 years (operated 2002 or earlier).

Patients (materials) & methods:

46 patients were treated with a "classical ACI", whereas in 15 patients (from the year 2001 onwards) the cell suspension was combined with a collagen-fibrinogen scaffold (ChondroArt 2D, Educell, Slovenia). A medial parapatellar arthrotomy was used to expose the lesion, which was debrided and covered by the sutured periosteum. The average age of the patients was 29.4 years. The lesion causes were: 32 traumatic, 19 osteochondritis dissecans (OCD), 10 localized degenerative diseases. 35 patients had already been previously operated on the same knee, and in 14 of them an cartilage repair other than ACI had been conducted. The average lesion size was 4.7 cm². A simultaneous anterior cruciate ligament (ACL) reconstruction (BTB, open technique) was performed in 16 patients, and one patient had a high tibial osteotomy done.

Results:

The analysis is based on 52 patients (excluded 4 patients that needed a total joint replacement and 5 patients that were lost to follow-up). A subjective knee function improved in the whole patient population (IKDC subjective pre-OP 36, post-OP 61; Lysholm score pre-OP 50, post-OP 76). The knee improved also at the IKDC surgeon's evaluation (pre-OP 7 normal, 19 nearly normal, 16 abnormal, 10 severely abnormal; post-OP 19 normal, 24 nearly normal, 7 abnormal, 2 severely abnormal). An increase on the Tegner activity scale 2.9 to 4.0 was noted, but the patients did not reach the pre-injury level at 6.5. The overall results through the subgroups were following: OCD (95% improved), isolated traumatic lesions (81% improved), lesion with ligament reconstruction (75% improved), degenerative lesions (20% improved). All 4 patients who received the total knee arthroplasty were in the subgroup "degenerative". Patients with a successful result after two years remained stable after five years, and vice-versa. There were no significant clinical differences detected between the evaluations at 5 and 10 years.

Conclusion:

According to the results we recognize the ACI as a successful and safe method for the treatment of isolated chondral lesions in the knee, but it has only a limited role in the localized degenerative disease. ACI can be successfully used as secondary treatment. The inferior results with the simultaneous ACL reconstruction may originate in the open surgical technique, in which the tunnel placement is less accurate. We expect the combination used today (patient selection, less invasive scaffold implantation, arthroscopic ligament repair, strict indications for the osteotomy, faster rehabilitation) to improve the results further.

Literature:

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