

Hip arthroscopic chondral repair offer superior results than microfractures in femoroacetabular impingement cohort: Minimum 3 year results in a prospective controlled study.

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INTRODUCTION:

Chondral defects in the hip can be treated with microfracture, however at medium term the results tend to deteriorate. An alternative is to undertake chondral repair with cell-augmentation including bone marrow harvested mesenchymal stem cells (MSCs) and/or scaffolds. There is paucity of controlled studies.

The aim of our study was to compare results of arthroscopic chondral repair with MSCs augmentation in treatment of ICRS grade 2-4 osteochondral defects in hip arthroscopy patients undergoing treatment for femoroacetabular impingement (FAI) compared to microfracture, controlling for confounders.

The study design was that of a prospective controlled study (Level II).

METHODS:

Study design was that of prospective case-control with minimum 3-year follow-up. A total of 100 patients undergoing hip arthroscopy for femoroacetabular impingement with grade 2-4 chondral defects were included. Chondral defects were either treated with MSC augmentation(47/100) or with microfracture alone(53/100). Patients with grade-4 defects >3cm² were excluded. Data were collected pre/per/post-operatively at 6,12,26 weeks and then annually. This included demographics, chondral-defect grading, radiographic parameters, modified Harris Hip Score(mHHS), VAS for satisfaction(0-10), Non-Arthritic Hip Score(NAHS) and adverse events. Descriptive statistics, t-test for parametric and chi-squared test for non-parametric variables were employed with alpha at 5% and beta at 80%.

RESULTS:

Mean age in MSC-group and control-group was 42.7(21, 69) and 41.1(19, 68) respectively. Pre-operative mean scores improved in the MSC-group (mHHS from 63.1 to 87.5 (p<0.001), VAS from median 5 to 9, mean NAHS from 61 to 84 (p=0.003) and in control-group (mHHS from 66.2 to 83, VAS from median 6 to median 8, mean NAHS from 62 to 77(p=0.001). The improvement remained sustained in majority of MSC-group while late deterioration occurred in 18% of control-group. In MSC and control groups conversion to total hip arthroplasty (THA) rate 2.1% and 7.5% respectively.

DISCUSSION AND CONCLUSION:

Treatment of chondral defects with MSCs augmented repair appears to offer safe and effective treatment and results are better sustained than the microfracture control-group at a minimum of 3-years. The conversion to THA was lower in the chondral repair group at 3-year follow-up.