

Positive Predictor Factors of Hip Mosaicplasty and Cartilage Repair: A Meta-Analysis

Is it comparable to Predictor Factors of Mosaicplasty in the Knee?

Introduction: Osteochondral defects of the hip present a unique challenge in management. These defects can be due to many etiologies such as avascular necrosis, trauma, femoroacetabular impingement (FAI), osteonecrosis, dysplasia, and cancer. One option for management is the osteochondral autograft transplantation (mosaicplasty). Osteochondral autograft procedure indications, outcomes, and predictive factors have been extensively studied in the knee and ankle. However, these results are not well known in the hip. The current literature includes many case reports that provide limited patient numbers. The goal of this paper is to explore the positive predictor factors for significant increases in the Harris Hip Score in post-operative patients. **Methods:** Meta-analysis review was performed by using PubMed, CINAHL, and Cochrane Central Register of Controlled Trials databases to search for articles relating to mosaicplasty of the hip. The terms ‘hip AND osteochondral autograft transfer’ and ‘hip AND mosaicplasty’ were searched. The quality of the methodologies of this study were evaluated using the Modified Coleman Methodology Scores (MCMS). The HHS index scores pre- and post-operatively were compared and evaluated. A random meta-analysis model was used to perform the analysis. The various studies were classified based on the desired variables (for example, age groups, gender groups, etc.) and the average improvement of the HHS in these groups were calculated and compared. A meta-regression result of $p < 0.2$ instead of 0.05 as the limit of significance and non-significance was utilized. **Results:** Eleven articles matched the search criteria. In the general analysis, the HHS score increased by 32.43 units after surgery and was significant. The HHS index significantly increased across all gender groups, however, there was no significant difference in HHS between genders. Grafting from the ipsilateral knee and lack of complications also had significant increases in HHS. The increase in score did not significantly change based on the average length of follow-up, age of participants, etiology of disease, size of the defect, or type of surgery. The mean Modified Coleman Methodology Score was 44.32 ± 12.70 which is considered poor. **Discussion:** Due to the small number of papers focusing on mosaicplasty in the hip, the positive predictor correlations found in the knee are not readily identified in the hip. It is important to gather larger scale studies to effectively evaluate the outcomes of hip osteochondral autograft transplantation procedures on the functional outcomes of patients. The current literature we have is an introduction to the potential this procedure holds for patients.

Keywords: hip mosaicplasty; mosaicplasty; hip osteochondral autograft transplantation; harris hip score