Osteochondral Allograft Transplantation Has Higher Failure Rates in Patients Older Than 50

Saagar Dhanjani, Tim Wang, William Bugbee

INTRODUCTION: Osteochondral allograft (OCA) transplantation is typically indicated for young active patients who have focal articular cartilage defects. To our knowledge, no study has yet examined outcomes of OCA transplantation in a relatively large cohort of patients older than 50 with long-term follow-up. The purpose of this study was to compare graft survivorship and patient-reported outcome measures (PROMs) following OCA transplantation of the knee in patients over 50 years old compared to a control group of patients less than 50 years old.

METHODS: All patients undergoing OCA transplantation of the knee with minimum 2-year follow up were identified. Patient demographics (age, BMI, gender, surgical history) and surgical details (laterality, diagnosis, anatomic location, number of plug grafts, concomitant procedures, graft size) were extracted from our intuition's IRB-approved prospective OCA registry. Failure was defined as graft removal or conversion to arthroplasty. PROMs and satisfaction were recorded at latest follow-up. Statistical analyses compared demographics, surgical details, failure/reoperation rate, and PROMs between those aged <50 and those ≥50.

RESULTS: This study included 527 patients (560 knees) with mean ages of 30.7 years old (518 knees) in patients <50 and 55.5 years old (42 knees) in patients ≥50. Demographic and surgical variables were similar between groups and only diagnosis and anatomic location significantly differed by age. Failure rates were higher in patients ≥50 compared to those <50 years old (33.3% vs. 14.5%, p=0.001), and remained elevated after adjusting for diagnosis (p=0.019), anatomic location (p=0.005), and previous surgery (p=0.002). When controlling for all variables in logistic regression analysis, patients ≥50 were 2.24 times more likely to fail than those <50, though this approached significance (p = 0.051). Survival probabilities at 5 and 10 years were 91% and 85%, respectively, for patients <50 and 74% and 56%, respectively, for patients ≥50 (p=0.001) (Figure 1). Excluding failures, patients <50 improved in all PROMs, while those ≥50 improved in all except KOOS Sport and KOOS Symptoms. Procedure satisfaction was reported by 85.4% of patients <50 and 91.3% of those ≥50. Improvement in PROMs and satisfaction did not significantly differ between age groups.

DISCUSSION AND CONCLUSION: Although patients ≥50 years undergoing knee OCA transplantation have higher failure rates than younger patients, they still report significant PROM improvements and high satisfaction. OCA transplantation may be a viable alternative to arthroplasty in select patients ≥50, given surgeons are aware of failure/survival rates.