

Static Spacers Increase Patella Baja Risk in Chronic PJI of the Knee

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INTRODUCTION: Patellar baja is a known issue following total knee arthroplasty (TKA). Static spacers for TKA periprosthetic joint infection (PJI) have been shown to result in shortening of the extensor mechanism, though no comparison to articulating spacers has been performed. This study aimed to evaluate the association between spacer type and the incidence of true patellar baja.

METHODS: We retrospectively reviewed 179 patients who underwent two-stage revision arthroplasty for chronic knee PJI (97 static and 82 articulating spacers) from our institutional arthroplasty registry. The primary outcome was the development of patellar baja via Modified Insall-Salvati and Blackburn-Peel ratios. A binary logistic regression model was used to assess the association between spacer and patellar baja, adjusting for potential confounders including age, sex, ASA score, presence of augments, cones/sleeves, and preoperative arc of motion. Cumulative incidence functions were used to compare the risk of revision surgery (for infection and for any cause) between spacer types, treating death as a competing risk.

RESULTS: Patellar baja occurred in 13 (7%) patients. Patients receiving static spacers were significantly more likely to develop patellar baja compared to those receiving an articulating spacer (11/97 vs. 2/82, respectively, $p = 0.0222$). In the multivariable analysis, static spacers remained significantly associated with higher odds of true patellar baja (OR=8.9, $p=0.04$). There were no significant differences in the cumulative incidence of revision for infection ($p=0.981$) or any cause ($p = 0.25$). Patients who developed patellar baja had significantly reduced knee flexion at final follow-up compared to those without (mean 82° vs. 105° , $p=0.008$).

DISCUSSION AND CONCLUSION: The use of static spacers during two-stage revision arthroplasty was significantly associated with an increased risk of developing patellar baja compared to articulating spacers. Furthermore, patellar baja was associated with significantly worse final knee flexion. Spacer type did not influence the risk of subsequent revision surgery within the observed follow-up period.