

Does the Addition of a Tibial Stem Extender in Total Knee Arthroplasty Decrease Risk of Aseptic Loosening in Patients with Obesity? An Analysis from the American Joint Replacement Registry

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INTRODUCTION:

Mechanical loosening is a leading cause of failure of total knee arthroplasties (TKAs) for which obesity may be a risk factor. With rising rates of obesity and increasing incidence of TKA, the identification of factors to mitigate this cause of failure is necessary. The purpose of this study is to determine if the use of a tibial stem extender (TSE) decreases the risk of mechanical loosening in patients with obesity undergoing TKA.

METHODS: The American Joint Replacement Registry (AJRR) and linked Center of Medicare Services (CMS) claims database were utilized to identify a patient cohort with a body mass index of 30 kg/m² or greater and age 65 years or older who underwent primary elective TKA between 2012 and 2021. Patients were divided into cohorts based on obesity class and TSE utilization. The estimated association of TSE use, BMI categories, and covariates with the risk of revisions for mechanical loosening in both unadjusted and adjusted settings was determined. Hazard ratios (HRs) and their 95% confidence intervals (CIs) for the risk of mechanical loosening were calculated.

RESULTS: 258,775 TKA cases were identified. 538 of 257,194 (0.21%) patients who did not receive a TSE and one patient out of 1,581 (0.06%) with a TSE were revised for mechanical loosening. In adjusted analysis, TSE use was not protective against mechanical loosening and BMI > 40 was not a significant risk factor.

DISCUSSION AND CONCLUSION: Use of a TSE was not found to be protective against mechanical loosening in patients with obesity; however, analysis was limited by the small number of outcome events in the cohort. Further analysis with a larger cohort of patients with TSE and a longer follow up time is necessary to corroborate this finding.