Bariatric Surgery Patients Have Comparable 5-year Risk Of Revision Following Total Knee Arthroplasty Compared To Class III Obesity Patients: A Propensity Matched Analysis

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INTRODUCTION:
Bariatric surgery (BS) is indicated for select class III obesity patients undergoing total knee arthroplasty (TKA) to reduce obesity-related complications. This study assessed the efficacy of BS on TKA revision rates compared to the general population and class III obesity patients without a history of BS.

METHODS:
A national database identified patients who had primary TKA. They were divided into two groups: those with BS prior to TKA and those without. Control groups included class III obese patients and a matched general population. The BS group was matched with controls based on age, Charlson Comorbidity Index (CCI), gender, and diabetes mellitus. Revision rates were analyzed using Kaplan-Meier survival analysis and hazard ratios, calculated using Cox proportional hazard modeling.

RESULTS:
10,000 BS patients were compared to 40,000 matched control patients, and 12,086 BS patients were compared to 48,132 matched class III obesity control patients. BS patients had a higher risk of 5-year all-cause revision compared to the general population (HR: 1.13; P=0.044). Compared to class III obesity controls, BS patients had a lower risk of 5-year revision due to prosthetic joint infection (HR: 0.80; P=0.034), with no difference in all-cause revision (P=0.217).

DISCUSSION:
BS does not reduce all-cause TKA revision risk compared to the general or matched class III obesity population. However, it lowers the risk of revision due to prosthetic joint infection when compared to patients with class III obesity.

SIGNIFICANCE/CLINICAL RELEVANCE:
The higher risk of revision surgery when compared to the general population and comparable risk when compared to the class III obesity control suggests that BS may not be entirely effective in reducing revision rates following TKA. However, the lower risk of PJI when compared to the class III obesity control suggests that it may be efficacious in select patients at high-risk of PJI. The authors cannot recommend BS for PJI prophylaxis in all class III obesity patients, but further research controlling for other high-risk categories can determine which patients would benefit the most from bariatric surgery.