

Glucagon-like-peptide-1 Receptor Agonist Use in Patients with Obesity is Not Associated with a Lower One-Year Reoperation Rate: A Propensity Score-Matched Analysis

Scott Michael Lavalva, Billy Insup Kim, Aaron Ira Weinblatt, JACQUELINE A GRUBEL, Justin Ong, Gwo-Chin Lee, Michael Lloyd Parks, Alejandro Gonzalez Della Valle

INTRODUCTION: Glucagon-like-peptide-1 receptor agonist (GLP-1 RA) medications continue to grow in popularity given their favorable impact on weight loss and metabolic health in patients with obesity and/or diabetes. Previous studies have suggested that these medications may significantly reduce the rate of early perioperative complications after primary total knee arthroplasty (TKA); however, the impact of these medications on longer-term implant-related complications remains unknown.

METHODS: We retrospectively identified 8,674 patients with a BMI ≥ 30 who underwent primary uncomplicated TKA at a high-volume tertiary referral center over a 5-year period. Patients were stratified based on preoperative GLP-1 RA use, (+)GLP-1 RA versus (-)GLP-1 RA, and propensity-score matched in a 1:3 ratio by age, sex, race, BMI at surgery, diabetes status, metformin use, Charlson Comorbidity Index, history of bariatric surgery, and surgical modality. The primary outcome of interest was the rate of reoperation within one year of primary TKA in obese patients taking GLP-1 agonists [(+)] versus those not [(-)].

RESULTS: Mean patient age was 64 ± 8 years, 5,503 (37%) were women, and mean BMI at surgery was 36 ± 5 kg/m². After matching, there were 251 patients making up the (+) group and 715 patients in the (-) group. There were no significant differences between the groups at baseline with respect to matched variables ($p > 0.05$ for all). Overall, there were 8 reoperations (3.2%) within 1 year in the (+) cohort, compared to 14 (2.0%) in the (-) cohort ($p = 0.323$). There were no differences between the (+) cohort compared to the (-) cohort in the rate of reoperations for infection (0.4% versus 0.4%; $p = 1.000$), aseptic revisions (0 versus 1.0%; $p = 1.000$), or manipulations under anesthesia (1.2% vs. 1.0%; $p = 0.725$). In a subgroup analysis of patients with BMI ≥ 40 , the overall rate of reoperation was 4.6% (4/87) in the (+) cohort compared to 1.3% (3/230) in the (-) cohort, though this difference did not reach statistical significance ($p = 0.093$).

DISCUSSION AND CONCLUSION: At a high-volume center, preoperative GLP-1 RA use was not independently associated with fewer reoperations within 1 year of primary TKA in obese patients. Large prospective studies are warranted to better understand the impact of these widely utilized medications on outcomes after TKA.