GLP-1 Agonists Versus Bariatric Surgery: Which Management Carries Heavier Weight Prior to Total Knee Arthroplasty?

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INTRODUCTION: Both glucagon-like peptide-1 (GLP-1) receptor agonists and bariatric surgery are interventions that can result in weight loss prior to total knee arthroplasty (TKA). We sought to compare 90-day postoperative complications between TKA patients with a history of GLP-1 use versus those who underwent bariatric surgery prior to TKA.

METHODS: Patients undergoing elective, primary TKA for osteoarthritis from 2005-2025 were identified from the TriNetX Research Network. Patients who underwent bariatric surgery 6-months to 1-year prior to TKA were propensity score matched 1:1 to patients who initiated GLP-1 agonist therapy during this same time period based on age, sex, race, chronic kidney disease, rheumatoid arthritis, hypertension, heart disease, diabetes, and body mass index (BMI) 6 weeks prior to weight loss intervention. A total of 1,185 patients were included in each cohort with 90-day follow up. The risk of various 90-day complications associated with medical and surgical weight loss interventions was compared utilizing multivariate regression analyses.

RESULTS: Rates of individual medical and surgical complications were comparable between the cohorts, however the GLP-1 cohort had significantly higher rates of implant fracture (0.9% vs. 0%, p=0.002), instability (0.8% vs. 0%, p=0.002) and peripheral nerve injury (0.8% vs. 0%, p=0.002). Compared to obese controls with no intervention prior to TKA, those who underwent bariatric surgery had lower rates of any surgical complication (0.7% vs. 1.8%, OR 0.4 (0.18, 0.75) p=0.005), while those who took GLP-1 analogues had comparable rates of all complications.

DISCUSSION AND CONCLUSION: There were largely comparable rates of adverse outcomes between patients that underwent bariatric surgery and those that initiated GLP-1 agonists prior to TKA. Patients who choose GLP-1 agonists and bariatric surgery prior to TKA can expect to have comparable to lower rates of complications compared to obese patients who elect for no intervention prior to TKA.