## Most Complications in Obese Joint Replacement Patients Are Treatable

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INTRODUCTION: Due to the high risk of complications, the body mass index (BMI) has been a commonly used cutoff metric for joint replacement surgery. While there is controversy on whether it should be used to determine eligibility for surgery, most studies have found an increased risk of complications with elevated BMI. However, the percentage of these complications that are treatable has been minimally reported on.

METHODS: Demographics, comorbidities, perioperative variables, and complications were reviewed for 700 patients with BMI >40. 475 patients underwent total knee replacement (TKAs) and 225 underwent total hip replacement (THAs). Univariable and multivariable hierarchically generalized linear mixed models (GLMMs) were utilized to control for relevant covariates. Complication within 90 days of procedure were recorded and divided into treatable versus irreversible (non-treatable) complications. Treatable complications included postoperative complications that were resolved within a 90-day window. Non-treatable included postoperative complications that were not resolved within a 90-day window and led to long-term functional consequences; a worsened state than the patient had prior to surgery.

RESULTS: 211 of the total 700 patients had at least one complication. 205 procedures resulted in a medical complication (29.3%), 105 surgeries resulted in a surgical complication (15.0%), 97 procedures required reoperation (13.9%), and 104 procedures required readmission (14.9%). 149 of the 211 (70.7%) complications were treatable. Among hip replacements on patients with a BMI >40, BMI did not demonstrate a significant overall effect on any unadjusted (p=0.94) complication rate or adjusted analysis (p=0.66). Among knee replacements on patients with a BMI > 40, BMI did not demonstrate a significant overall effect on any unadjusted (p=0.66). BMI stratification was performed (40-44.99, 45-49.99, and > 50), and no appreciable difference in complications, treatable or non-treatable, were observed.

## DISCUSSION AND CONCLUSION:

BMI cutoffs are a widely used criterion restricting TKAs and THAs in healthcare centers globally. While evidence in the literature suggests a higher BMI is associated with more postoperative complications, few studies describe the percentage of complications that can be treated and resolved. The analytic sample of 700 patients with a BMI > 40 over a 17-year span through univariable and multivariable GLMMs concluded the vast majority of complications (70.7%) were treatable. Although this cohort demonstrated an increased risk of complications with a BMI > 40, the majority of complications were able to be resolved within a 90-day span following the procedure.