How Much Preoperative Weight Do Morbidly Obese Patients Undergoing Total Knee Arthroplasty Need to Lose to Meaningfully Improve Outcomes?

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INTRODUCTION:
Many surgeons require or request weight loss among morbidly obese (body mass index (BMI) ≥40) patients before undergoing total knee arthroplasty (TKA). We sought to determine how much weight reduction was necessary to improve operative time, length of stay (LOS), discharge to a facility, and physical function improvement.
METHODS:
Using a retrospective review of 2011-2016 prospectively collected cohort data at one tertiary institution, we identified 203 patients who were morbidly obese at least 90 days before surgery and had their BMI measured again at the immediate preoperative visit. All heights and weights were clinically measured. Of these 203, 41% lost at least 5 pounds before surgery, 29% lost at least 10 pounds, and 14% lost at least 20 pounds. Twenty-seven patients (13%) were no longer morbidly obese, although 23 of those still remained severely obese (BMI between 35 and 40). All models were adjusted for preoperative age, sex, year of surgery, bilateral status, physical function (PROMIS-10 physical component score, PCS), mental function (PROMIS-10 mental component score), and Charlson Comorbidity Index.
RESULTS:
Compared to morbidly patients who did not lose 20 pounds, losing 20 pounds before TKA among morbidly obese patients was associated with lower adjusted odds of discharge to a facility (OR 0.28, 95% CI 0.09–0.94, P=0.039), lower odds of extended LOS of at least 4 days (OR 0.24, 95% CI 0.07–0.88, P=0.31), and absolute shorter LOS (-0.87 days, 95% CI -1.39–-0.36, P=0.001). There were no differences in operative time or PCS improvement. Losing 5 or 10 pounds was not associated with differences for any outcome.
DISCUSSION AND CONCLUSION:
Although there were no differences for operative time or physical function improvement, losing at least 20 pounds before TKA was associated with shorter LOS and lower odds of facility discharge for morbidly obese patients. This has immense implications on patient burden and cost reduction, even while most patients remained morbidly or severely obese. Patients and providers may want to focus on larger presurgical weight loss.