Greater Improvement in PROMs in Patients with Body Mass Index ≥40 Following Primary TKA

Ashton Caylee Bosler, Evan Deckard[1], Leonard T Buller, Mary Ziemba-Davis[2], R Michael Meneghini[3]
[1]IU School of Medicine, Dept of Orthopaedic Surgery, [2]Indiana University Health Physicians, [3]Indiana Univ Hlth Phys

INTRODUCTION: Body mass index (BMI) cutoffs have been established at some institutions for total knee arthroplasty (TKA) patients due to increased risk of medical complications in obese patients. However, evidence-based medical optimization may mitigate risk in obese patients. This study examined the influence of the 40 kg/m^2 BMI cutoff on patient-reported outcomes measures (PROMs) following primary TKA with specialized perioperative optimization.

METHODS:

1,329 primary TKAs with standardized surgical techniques, identical congruent bearings, and standardized perioperative optimization and management protocols were retrospectively reviewed. Demographics and covariates related to PROMs were compiled. Patients were categorized into two groups based on BMI ≥40 or <40 kg/m^2. Outcomes were revision status and prospectively collected PROMs related to activity level, pain, function, and satisfaction.

RESULTS: 22.9% of patients had a BMI ≥40. The ≥40 BMI group had significantly lower age, more females, worse ASA-PS classification; a higher prevalence of depression and preoperative narcotic use ($p \leq 0.008$); and significantly lower *preoperative* PROM scores ($p < 0.001$) compared to the <40 BMI group. Despite these differences, the ≥40 BMI group was associated with greater improvement in Knee Society pain with level walking and stair climbing ($p \leq 0.001$), KOOS JR score ($p = 0.001$), and greater satisfaction (92% vs 82%, $p = 0.002$) at minimum 1-year follow-up. In multivariate analysis, BMI ≥40 was the largest standardized effect on improvement in PROM scores. No cases in the ≥40 BMI group were revised for aseptic loosening, and cases revised for periprosthetic joint infection were not different between groups ($p = 0.800$).

DISCUSSION AND CONCLUSION: Despite being more debilitated preoperatively, patients with BMI ≥40 experienced greater improvement in PROMs compared to BMI <40. Given the significant improvements in PROMS and quality of life in morbidly obese patients with BMI ≥40, with appropriate perioperative optimization and risk mitigation, these patients should not be prohibited by payers or surgeons from having TKA when appropriately indicated.