Effectiveness of Weight Loss Treatment in Total Joint Arthroplasty

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INTRODUCTION:

Total joint arthroplasty (TJA) is a common major elective procedure with over 1 million procedures performed annually in the United States and an expected continued increase in the coming decades[1]. The prevalence of obesity also continues to increase among patients undergoing total hip arthroplasty (THA), 39% in 1998 and 52% in 2011, and total knee arthroplasty (TKA), 57% in 1998 and 70% in 2011[2]. The current American Association of Hip and Knee Surgeons (AAHKS) guidelines state that a shared decision-making process should occur between the physician and patient prior to proceeding with TJA; however, they also acknowledge that in an obese patient, weight loss should be strongly encouraged[3]. The increased rate of complications following TJA in obese patients is well known, including increased rates of infection, length of stay, component malpositioning, and revision rates[4-6]. Despite this data, there remains a paucity of published studies evaluating the success of preoperative nonsurgical weight loss initiatives prior to TJA[7]. This study sought to retrospectively review the success of a provider assisted weight-loss program in assisting obese patients lose weight prior to total joint arthroplasty.

METHODS:

All patient encounters with an in-house nurse practitioner between the dates of September 2018 and September 2021 were identified. A retrospective chart review was completed for patients with knee or hip osteoarthritis presenting as a referral for weight loss and variables including baseline BMI, discharge BMI, prescribed intervention, and eventual arthroplasty versus continued non-operative treatment were compiled. These findings were reviewed to identify trends in weight loss and eventual progression to operative intervention for arthroplasty.

RESULTS:

For patients with knee osteoarthritis, 591 patients were included, of which 73 patients underwent TKA, indicating an overall success rate of 12.35%. Patients with Class I (n=15) or Class III obesity (n=327) who proceeded with TKA (n=4, 26.67%%; N=52, 15.9%) had an average BMI decrease of 1.05 AND 2.13, respectively, while those who did not proceed with TKA, who had an average BMI decrease of -0.21 and 0.41 ($p=0.026$; $p<0.001$). There was no difference in average BMI decrease between patients with Class II obesity who proceeded with TKA and those who did not.

For patients with hip osteoarthritis, 156 patients were included, of which 50 patients underwent THA, indicating an overall success rate of 32.05%. Patients with Class III obesity (n=97) who proceeded with THA (n=32, 32.9%) had an average BMI decrease of 2.18, as compared to those who did not proceed with TJA, who had an average BMI decrease of 0.59 ($p=0.001$). There was no difference in average BMI decrease between patients who proceeded with TJA and those who did not in patients with Class I or Class II obesity.

DISCUSSION AND CONCLUSION:

This study demonstrated that there was a decrease in BMI of patients with Class III obesity who progressed to operative intervention. Patients with Class III obesity benefit from provider-assisted preoperative optimization.