



Paper #46

Complications of Obesity in Total Joint Arthroplasty: Risk Stratification Based on BMI

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Introduction: The relationship of obesity and postoperative complications in total joint arthroplasty (TJA) has not been comprehensively described. This study quantifies and stratifies postoperative complication risk in a large population of TJA patients based on body mass index (BMI).

Methods: The Veterans Affairs Surgical Quality Improvement Program database was reviewed from 2006 to 2009 for primary TJA patients. Demographics, co-morbidities, operative time, transfusions, length of stay (LOS), disposition, and 30-day complications (deep infection, superficial infection, urinary tract infection, deep vein thrombosis, pulmonary embolism, reintubation, reoperation, myocardial infarction, cardiac arrest, cerebrovascular accident, pneumonia, and acute kidney injury (AKI)) were reviewed. Chi-squared analysis and one-way ANOVA were calculated. Univariate analysis was performed comparing patients in BMI categories. Odds Ratios were calculated and multivariable regression analysis performed.

Results: 22,826 patients were included (15,461 total knee (TKA) and 7,365 total hip (THA)). There was a statistically significant increase in overall complications as BMI increased ($P=0.047$). Specific complications showing a significant increase with BMI included AKI ($P=0.000$), cardiac arrest ($P=0.001$), reintubation ($P=0.006$), reoperation ($P=0.043$), and superficial infection ($P=0.026$). Univariate analysis for BMI > 40 revealed an increased rate of combined complications of 2.19% (15.21 vs 17.40%, $p=0.021$). There were significant increases for AKI (1.93 vs 3.87%, $P=0.000$), cardiac arrest (0.22 vs 0.57%, $p=0.007$), reintubation (0.47 vs 0.95% $p=0.009$), reoperation (2.36 vs 3.37%, $p=0.013$), and superficial infection (0.82 vs 1.65%, $p=0.001$). Multivariable regression analysis showed BMI > 40 to be an independent predictor for combined complications (OR 1.18), AKI (OR 1.79), cardiac arrest (OR 3.94), reintubation (OR 2.56), reoperation (OR 1.44), and superficial infection (OR 2.11).

Conclusion: Increased BMI confers increased risk for postoperative complications in TJA, however the absolute risk difference is relatively small. Patients should be counseled and the decision to undertake TJA approached with caution in the morbidly obese population.
