

# **The Impact of Obesity on Total Knee Arthroplasty Outcomes: A Retrospective Matched Cohort Study**

Vikram Aggarwal<sup>1</sup>, Senthil Nathan Sambandam<sup>2</sup>, Dane K Wukich

<sup>1</sup>UT Southwestern Medical Center, <sup>2</sup>VA Medical Center

## **INTRODUCTION:**

Introduction: Previous research has shown that obesity is associated with poorer post-operative outcomes. This study elaborates on that research to determine how rates of specific complications and costs after total knee arthroplasty align with obesity status. We hypothesized that obese patients would have higher rates of complications and costs, thus worse outcomes, than non-obese patients.

## **METHODS:**

Methods: Data were collected from a large commercial insurance database between the years 2011-2020. Patients who underwent a knee replacement were identified under Current Procedural Terminology (CPT) and International Statistical Classification of Diseases (ICD-9/ICD-10) codes. Obese and non-obese patients were matched on age, gender, Charlson Comorbidity Index, and Elixhauser Comorbidity Index. Standardized complications and costs at one year were compared using unequal variance t-tests.

RESULTS: Results: Under CPT codes, 118382 obese and non-obese patients (38% male) each underwent knee replacement, Obese patients had significantly higher rates of surgical site infection (OR=1.125 p=0.0002), acute kidney injury (OR=1.163 p<0.0001), deep vein thrombosis (OR=1.345 p<0.0001), wound complication (OR=1.318 p<0.0001), hematoma (OR=1.154 p=0.0031), urinary tract infection (OR=1.072 p<0.0001), and narcotics use (OR=1.083 p<0.0001), but significantly lower rates of anemia (OR=0.920 p=0.0006), arrhythmia (OR=0.925 p<0.0001), cardiac arrest (OR=0.693 p<0.0001), and transfusion (OR=0.796 p<0.0001). Furthermore, obese patients were significantly more likely to undergo revision within 10 years (OR=1.251 p<0.0001). Under ICD codes, 60887 obese and non-obese patients each were included (38% male). Obese patients had a statistically significant increase 1.5% in total cost (p=0.0006) but 5.8% decrease in drug cost (p=0.0002).

## **DISCUSSION AND CONCLUSION:**

Conclusions: This study did not support our hypothesis that obese patients have worse outcomes than non-obese patients after knee replacement as some complications and total cost were significantly greater in obese patients while other complications and drug cost were significantly greater in non-obese patients. Further research should be done to better understand the complex relationship between obesity and post-operative outcomes.