

## **Race affects the rate of reoperation in primary but not revision total knee arthroplasty**

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### **INTRODUCTION:**

A growing body of literature suggests racial disparities adversely affect access and outcomes for primary total knee arthroplasty (TKA). However, the effect of race on the rate of complications and reoperations after revision TKA remains uncharacterized. The purpose of this study was to assess the impact of race on the rates of complications following primary and revision TKA.

### **METHODS:**

A retrospective cohort study of primary and revision TKAs from a single large, urban academic medical center from 2012-2020 was conducted. Any patient who underwent placement of a definitive implant was included; patients who underwent irrigation and debridement, liner exchange, cement spacer placement, or resection arthroplasty were excluded. Outcomes included the rate of medical complications, surgical complications, and revision surgeries. Medical complications included acute myocardial infarctions, sepsis, pulmonary embolism, pressure ulcers, pneumonia, encephalopathy, deep vein thrombosis, and other thromboembolic diseases. Surgical complications included bleeding, infection, implant loosening, osteolysis, instability, nerve injury, and stiffness. Data were analyzed using ANOVA and multivariate logistic regression.

**RESULTS:** 2,337 primary TKAs and 593 revision TKAs were included. Among primary TKAs, the rate of overall complications differed by race ( $p < 0.001$ ), with Black patients having the highest rate of complications at 16.9%. This disparity was due to differences in the rate of surgical complications; there was no association between race and the rate of medical complications. For primary TKAs, race was also associated with the rate of reoperation varied by race ( $p = 0.03$ ). For revision TKAs, race was also associated with the rate of overall complications ( $p = 0.03$ ), with black patients having a complication rate of 46.3%. There was no difference in rate of reoperation by race for patients who underwent revision TKA. In multivariate analyses for primary TKAs, age, race, and insurance type were independent predictors of overall and surgical complications. In multivariate analyses for revision TKAs, only ASA class was an independent predictor of overall and surgical complications.

### **DISCUSSION AND CONCLUSION:**

In this retrospective cohort study, race was associated with a higher rate of surgical complications and reoperations for primary TKAs. While the rate of surgical complications was also associated with race in revision TKAs, the rate of reoperation was not. Racial disparities appear to be more pronounced in primary TKAs than in revision TKAs.