Black Patients had Decreased Access and Higher 30 and 90-Day Mortality Rates Following Primary Total Knee Arthroplasty

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INTRODUCTION:
Racial disparities in access to arthroplasty care exist. Differential outcomes following total knee arthroplasty (TKA) between races have been reported. The purpose of this study was to assess the TKA population at a large health system and assess whether differences in complications exist in that population.

METHODS: A retrospective, single hospital system, multi-center study was performed that included all black and white patients who underwent primary TKA between 2016 and 2024 for degenerative joint disease. Other races were excluded due to low sample size and incomplete data. Patients who underwent primary TKA due to trauma/fracture, oncologic treatment were excluded. Patient demographics and clinical outcome data were retrieved from the electronic medical records. Multiple logistic regression analysis was used to evaluate the impact of race on the likelihood of experiencing 14 different post-operative complications after controlling for age, sex, BMI, and Elixhauser score. Statistical significance was defined as $p<0.05$. A Center for Medicare and Medicaid Services defined set of complications that are pertinent to total joint arthroplasty and help standardize reporting of complication rates.
RESULTS: A total of 21,241 patients were included in this study from 17 hospitals. 20,035 patients (94.32%) were white and 1,206 (5.68%) were black. For any given year within the study timeframe, black patients made up anywhere between 4.68% to 7.24% of primary TKA cases. Additionally, for most of the hospitals in the study, the proportion of black patients undergoing primary TKA was lower than the proportion of black residents in the county that the hospital is located in. Black patients were found to have higher rates of 30-day mortality (OR: 6.6, CI: 1.7 - 25.3), and 90-day mortality (OR: 5.5, CI: 1.7 - 17.5). All complications rates were similar (OR: 1.5, CI: 0.9 - 2.5) including, mechanical (OR: 2.1, CI: 0.81 - 5.4), pulmonary embolism (OR: 1.2, CI: 0.3 - 3.7), pneumonia (OR: 1.9, CI: 0.2 - 15.1), sepsis (OR: 4.4, CI: 0.9 - 20.5), wound infection (OR: 0.9, CI: 0.4 - 2.3), surgical site infection (OR:1.2, CI: 0.4 - 3.4), in-house mortality (OR: 5.3, CI: 0.5 - 51.4), 1-year mortality (OR: 1.7, CI: 0.9 - 3.4), 7-day readmission (OR: 1.7, CI: 0.94 - 3.0), 30-day readmission (OR: 1.4, CI: 1.0 - 2.1), or 90-day readmission (OR: 1.3, CI:0.9 - 1.7), were observed.
DISCUSSION AND CONCLUSION:
After controlling for numerous confounding variables, black patients were more likely to experience complications. Most notably, black patients had a much higher risk of mortality compared to white patients, despite TKA having a low absolute risk of death. Black individuals were also found to have lower utilization rates of primary TKA. Further research should aim to better understand contributing factors, and policy efforts are needed to increase awareness of racial disparities among both physicians and patients.

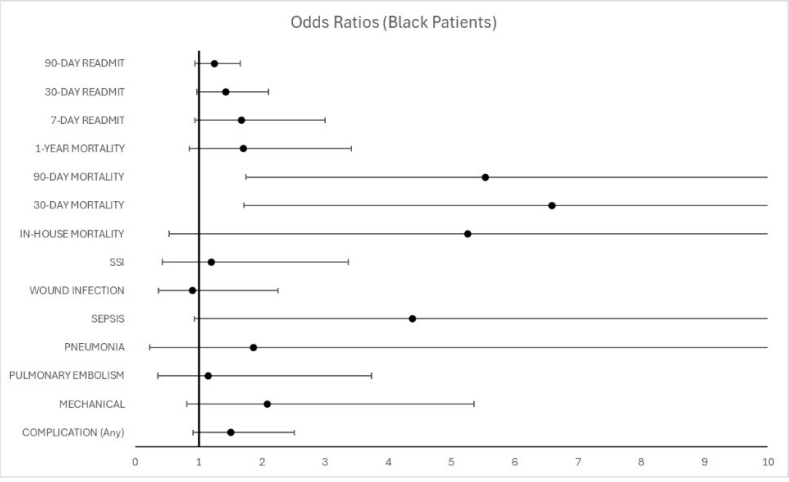

Figure 1: Forrest plot of odds ratios