

The Effect of Race On Lower Extremity Total Joint Arthroplasty: An Analysis of the National Inpatient Sample

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INTRODUCTION:

Total joint arthroplasty (TJA) is successful in improving health-related quality of life for a variety of lower extremity pathologies. However, outcomes vary in the literature due to modifiable and non-modifiable factors. Modifiable factors consist of BMI, nutrition, and tobacco use. Non-modifiable are less well-understood. Prior literature has focused on racial and ethnic disparities in terms of access to lower extremity arthroplasty. The purpose of this study is to determine the effect of race on cost, length of stay, and complication rate.

METHODS:

This retrospective cohort utilized summary data from the National Inpatient Sample between the years 2016 and 2019. Use of the ICD-10 Procedure Codes for a right hip, left hip, right knee, and left knee total joint arthroplasty revealed 2,660,280 patients. The exclusion criteria were bilateral arthroplasty and the absence of desired outcome data. The complications studied included acute myocardial infarction, septicemia, shock, stroke, pulmonary embolism, hardware complications, urinary tract infection, pneumonia, acute posthemorrhagic anemia, acute renal failure, and deep venous thrombosis. Odds ratio and Beta Coefficients were adjusted for age, sex, primary payer, hospital region, hospital teaching status, and year.

RESULTS:

A total of 2,610,125 patients (1,605,430 knee replacements and 1,004,695 hip replacements) met our inclusion criteria. African Americans, Hispanic/Latino, and Asian Americans, demonstrated a complication rate that was 25%, 24%, 28% higher than Caucasians, respectively ($p < 0.05$). Native Americans did not demonstrate a significantly higher complication rate than Caucasians ($p > 0.05$.) African American, Hispanic/Latino, Asian Americans, and Native Americans stayed insignificantly longer ($p < 0.05$; Beta Coefficient < 0.5 days) in the hospital following total joint arthroplasty as compared to Caucasian Americans (Beta Coefficients: 0.34 [0.31: 0.38], 0.14 [0.11: 0.18], 0.17 [0.11: .23], 0.14 [0.03: 0.25], respectively). African Americans and Asian Americans payed similar total charges to Caucasians ($p > 0.05$). Hispanic/Latino individuals payed \$10,985 [\$9,066: \$12,903] more than Caucasians ($p < 0.05$), while Native Americans payed -\$10,758 [-\$13,448, -\$8,067] less than Caucasians ($p < 0.05$).

DISCUSSION AND CONCLUSION:

This study demonstrated that African Americans, Hispanic/Latino, and Asian Americans have a higher complication rate than Caucasians. Hispanic/Latino individuals pay significantly more than Caucasians per arthroplasty-related hospital stay and Native Americans pay significantly less than Caucasians per arthroplasty-related hospital stay. We did not find a clinically significant difference in length of stay between ethnicities. Non-modifiable risk factors play a role in complication rate, but may not meaningfully affect length of stay after lower extremity arthroplasty. The present study highlights the need for further studies on healthcare outcomes related to ethnicity.