

Racial Disparities in Long Bone Fractures: A Large Public Database Analysis

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Purpose: Racial disparities in postoperative management of complications after fracture surgery are not well documented. Our study evaluated differences in health care delivery following diaphyseal tibia and femur fractures in Black (B) and White (W) patients insured by Medicaid.

Methods: Patients from the IBM MarketScan Medicaid database with diaphyseal tibia fracture (TF) or femur fracture (FF) treated with surgery were identified from October 1, 2015 to December 31, 2020. Variables included patient demographics, comorbidities, fracture types, and procedural characteristics. Outcomes included post-surgical treatment (medication use, reoperations) and diagnoses of complications up to 2 years post-index procedure. Health-care utilization analyses were conducted on Black and White cohorts matched to age, gender, fracture type, and year of index using propensity scores. Chi-squared tests and survival analyses were conducted, using an alpha of 0.05.

Results: 47,301 patients were identified (12,680 TF and 34,621 FF). Compared to the White patients, the Black patients were younger (<35 years old: TF: 18.8% B vs 12.5% W; FF: 5.7% B vs 2.1% W) with generally more severe fractures (open fractures: TF: 21.8% B vs 15% W; FF: 6.1% B vs 3.0% W; Gustilo III fractures in TF: 7.3% B vs 5.0% W). Matched cohort analyses demonstrated White patients were more likely to have reoperations after a fracture-related complication compared to Black patients (TF: hazard ratio [HR] = 1.14 [95% confidence interval (CI): 1.02-1.27], P = 0.013; FF: HR = 1.30 [95% CI: 1.17-1.46], P<0.001). Black patients were less likely than White patients to be prescribed antibiotics, strong opioids, or antidepressants (TF: antibiotics: B: 70% vs W: 80%, P<0.001; strong opiates: B: 6.9% vs W: 13%, P<0.001; antidepressants: B: 36% vs W: 52%, P<0.001; FF: antibiotics: B: 62% vs W: 79%, P<0.001; strong opiates: B: 9% vs W: 13%, P = 0.016; antidepressants: B: 30% vs W: 38%, P = 0.001).

Conclusion: Racial disparities were demonstrated in the treatment of publicly insured patients with diaphyseal lower extremity fractures. Despite having more severe injuries, Black patients were less likely to undergo revision surgeries after a fracture-related complication than White patients and get prescribed postoperative medications for infection, pain, and depression. Identification of factors driving differential management of complications after fracture surgery may be useful to promote health equity.