

Racial Disparities in Outpatient Anterior Cervical Discectomy and Fusion and Cervical Disc Replacement

Troy B Amen, Patawut Bovonratwet, Samuel S Rudisill, Lauren Barber, Yusef Jordan, Abhinaba Chatterjee¹, Jung Kee Mok, Nathan Varady, Sheeraz Qureshi²

¹Weill Cornell Medicine, ²Minimally Invasive Spine Surgery

INTRODUCTION: Disparities within cervical spine surgery have been recently reported, demonstrating lower utilization rates and worse perioperative outcomes for black patients. To date, however, it remains unknown how these disparities have translated to the outpatient setting and whether restrictive access to outpatient cervical spine procedures may exist by race. The purposes of this study were to 1) assess disparities in relative utilization of outpatient cervical spine surgery between white and black patients from 2010-2019 and 2) measure how these racial differences have evolved over time.

METHODS:

A retrospective cohort study was conducted using prospectively collected data from the American College of Surgeons National Surgical Quality Improvement Program (NSQIP) from 2010-2019. Patients who underwent primary anterior cervical discectomy and fusion (ACDF) and cervical disc replacement (CDR) were identified using current procedural terminology (CPT) codes and stratified by race/ethnicity (non-Hispanic white and non-Hispanic black). Each surgery was then categorized as inpatient or outpatient (OP), with outpatient surgeries being defined as same-day discharge (i.e., having total hospital length of stay (LOS) less than 1 day). Relative utilization of outpatient (same-day discharge) anterior cervical discectomy and fusion (OP-ACDF) and cervical disc replacement (OP-CDR) were assessed and trended over time between white and black race. Multivariable poisson regressions with robust error variance were performed to determine if there were any associations between race and receiving OP-ACDF or OP-CDR while controlling for baseline patient factors including age, sex, race, BMI, ASA, functional status, smoking status, and medical comorbidities.

RESULTS:

Overall, black patients were significantly less likely to undergo OP-ACDF (white vs. black: 10.6% vs. 5.9%, $p<0.001$) or OP-CDR surgery (white vs. black: 26.1% vs. 19.9%, $p=0.013$) when compared to white patients. From 2010 to 2019, an emerging disparity over time was found in outpatient utilization for both ACDF (e.g. white vs. black OP-ACDF: 6.0% vs. 3.1% in 2010 compared with 16.7% vs. 8.5% in 2019) and CDR (e.g. white vs. black OP-CDR: 11.6% vs. 0% in 2010 compared with 16.7% vs. 8.5% in 2019). After multivariable analysis, black patients were less likely to receive OP-ACDF (relative risk [RR]=0.58, 95% CI=0.52-0.66, $p<0.001$) and less likely to receive OP-CDR (RR=0.78, 95% CI=0.62-0.97, $p=0.025$), even after controlling for differences in patient demographics and medical comorbidities.

DISCUSSION AND CONCLUSION:

In this study we found emerging racial disparities in the relative utilization of outpatient cervical spine surgery between white and black patients. To our knowledge, this is the first study to examine outpatient disparities not only within cervical spine surgery, but also within spine surgery as a whole. These restrictive patterns of access to outpatient surgery may contribute to broader disparities in the overall utilization of major spine procedures. These findings also highlight the need for renewed intervention by orthopaedic surgeons and policymakers alike to address these inequalities in outpatient care before they become more firmly established within our healthcare systems.