Being on Anti-Osteoporosis Medication Confers a 30-Day Mortality Benefit in Hip Fracture Patients

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Purpose: There is previous longitudinal evidence to suggest anti-osteoporosis medication utilization has a protective mortality benefit in the long term in part through prevention of secondary fractures. This study sought to assess the impact of anti-osteoporosis medication on 30-day outcomes in patients undergoing surgery for hip fracture. We also sought to assess if racial disparities existed in the prescription of anti-osteoporosis medications during the inpatient period.

Methods: The ACS NSQIP (American College of Surgeons National Surgical Quality Improvement Program) targeted hip fracture series was merged and cross-walked to patient files to compile outcomes between 2016-2020. The ACS NSQIP targeted hip fracture series includes the proportion of patients on protective bone medications preoperatively, as well as postoperatively and other quality metrics. Patients were stratified into those who received postoperative bone medications and compared to those who did not. All statistical analyses were conducted using SPSS Version 28.0. We calculated independent Student t-tests to assess continuous variables. Chi-squared analysis was used for assessment of categorical variables. We conducted a binomial logistic regression analysis to assess the impact of osteoporosis medication on mortality controlling for comorbidities including diabetes, congestive heart failure, end-stage renal disease, and dependent functional status. Additional variables in the model included race, age greater than 80 years, and enrollment in a standardized hip fracture program.

Results: We identified 59,931 potentially eligible patients with hip fracture in the ACS-NSQIP targeted hip fracture database. After implementing eligibility criteria, our analyses included 36,485 patients. In the cohort, 46.8% of patients were prescribed a postoperative anti-osteoporosis medication. In an unadjusted analysis, patients on anti-osteoporosis medication were less likely to experience a mortality event in the 30-day postoperative period ($P<0.001$). Black patients and Latino patients were less likely than other patients to receive protective bone medications that other patients. In a binomial logistic regression analysis, prescription of anti-osteoporosis medication was a significant protective predictor of mortality ($B = –0.625$, confidence interval [CI] $B = 0.54$, 95% CI 0.59-0.59).

Conclusion: Patients prescribed anti-osteoporosis medication have a lower mortality rate than their counterparts who do not receive protective bone medications. Further investigation is warranted to examine the root of this mortality benefit as well as to assess for other factors leading to the disparities and low overall prescriptive rates observed in this study.