

The Focus on Quality Has Driven Down Hospital Stay and Complications Despite No Change in Mortality Following Surgical Treatment of Hip Fractures

*John Frederick Dankert, MD; Devan Mehta, MD; Charles Chun-Ting Lin, MD; Matthew Veenendaal Abola, MD; Siddharth Ashok Mahure, MD; Kenneth A. Egol, MD
NYU Langone Health, New York City, NY, United States*

Purpose: The incidence of hip fractures is expected to continue rising globally to coincide with the growing geriatric population. The purpose of this study was to compare developments in the treatments and outcomes for both femoral neck (FN) and intertrochanteric (IT) fractures from 2007 to 2016 using a large-scale database.

Methods: The American College of Surgeons National Surgical Quality Improvement Program database was queried for patients over 65 years of age treated for FN or IT fractures between 2007 and 2016. Linear regression analyses were conducted for continuous variables and Cochran-Armitage trend tests were completed for categorical variables. Statistical significance was defined as $P < 0.05$.

Results: 73,008 patients identified as having had a FN or IT fracture met the inclusion criteria for our analyses. Between 2007 and 2016, the mean age increased (76 to 77 years old, $P = 0.003$), body mass index increased (24.7 to 24.8, $P = 0.009$), American Society of Anesthesiologists class increased (2.94 to 3.02, $P = 0.001$), and modified Charlson Comorbidity Index scores decreased (3.2 to 2.9, $P < 0.001$) for this cohort. No statistically significant difference in the incidence ratio of FN versus IT fractures per year was observed. Between 2007 and 2016, two trends in fracture management were identified. The use of total hip arthroplasty for FN fractures increased from 22.2% to 28.8% ($P = 0.004$). The shift from plates and screws to intramedullary nails for the treatment of IT fractures also continued to increase from 64.7% to 79.4% ($P < 0.001$). Inpatient length of stay decreased from 2007 through 2016 (7.2 days to 6.7 days, respectively, $P < 0.001$), any complication decreased from 2011 through 2016 (41.1% to 29.9%, respectively, $P < 0.001$), and time from admission to operation decreased from 2007 through 2016 (1.38 days to 1.28 days, respectively, $P < 0.001$). No statistically significant difference was found for home discharge or mortality.

Conclusion: Government payor focus on quality measures has led to important improvements in hip fracture care. Decreases in inpatient length of stay, complications, and time to the operating room no doubt lower cost to the health-care system. However, despite these advancements, no differences in home discharge or mortality were identified over this study period. Future work will need to focus on uncovering other modifiable patient-centered factors to continue improving outcomes after FN and IT fractures.