

**Treatment of Femoral Neck Fractures in Patients 45 to 64 Years of Age***Joseph Johnson, MD; Justin Kleiner, BS; Avi Goodman, MD; Joseph A. Gil, MD;**Alan H. Daniels; Roman A. Hayda, MD**Brown University, Providence, Rhode Island, USA*

**Purpose:** Femoral neck fractures are challenging problems for treating surgeons and often cause prolonged disability for patients who sustain them. Young patients with femoral neck fractures are optimally treated with anatomic reduction and stable fixation, while patients over the age of 65 are often treated with arthroplasty. However, little data exist regarding the treatment of these fractures in patients between the ages of 45 and 64 years. This epidemiologic study was designed to analyze the in-hospital outcomes associated with hip arthroplasty and internal fixation for treatment of femoral neck fractures in patients aged 45 to 64 years.

**Methods:** The Nationwide Inpatient Sample (NIS) database was utilized to access US inpatient data from 2000 to 2012. Patients between the ages of 45 and 64 years who sustained femoral neck fractures were included based on ICD-9 coding data. Total annual case numbers were estimated by the Healthcare Cost and Utilization Project (HCUP) online query system. Examined variables were age, sex, and Charlson Comorbidity Index (CCI). Multi-variable linear regression was used to determine variables associated with mortality and in-hospital complications. Standard error was calculated for all variables. Odds ratios and 95% confidence limits were calculated for logistic regression variables. Statistical significance was set at  $P < 0.05$  a priori.

**Results:** From 2000 to 2012 total hip arthroplasty (THA) use increased from 267 in 2000 (5.3% of operatively managed fractures) to 1005 (17.5% of operatively managed fractures) in 2012 ( $P < 0.0001$ ). Over the 13-year study period, the percentage of femoral neck fractures occurring in our study group, ages 45 to 64 years, increased significantly from 7.43% to 10.7% ( $P < 0.0001$ ). Patients undergoing THA had an average hospital cost of \$67,146 while patients undergoing internal fixation had an average hospital cost of \$41,845 ( $P < 0.0001$ ). The average length of stay for patients undergoing THA was 6.9 days, while the average length of stay for patients undergoing internal fixation was 5.6 days ( $P < 0.0001$ ). The in-hospital complication rate for THA was 14.1%, while the average in-hospital complication rate for internal fixation was 8.0% ( $P < 0.0001$ ).

**Conclusion:** This study demonstrates that the use of THA in treatment of femoral neck fractures in patients aged 45 to 64 years increased 3.2-fold over the 13-year study period. This treatment is associated with increased hospital cost, length of stay, and complications. Additionally, the percentage of total femoral neck fractures occurring in this age group is steadily increasing over time.