

Hemiarthroplasty vs. Total Hip Arthroplasty for Femoral Neck Fractures: 2010-2017 Trends in Complication Rates

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Introduction: Optimal treatment for femoral neck fractures (FNF) remains debated. Recent data supports improved functional outcomes following total hip arthroplasty (THA) compared to hemiarthroplasty (HA) in active patients. However, temporal trends in complication rates between these treatments lacks study.

Methods: The National Surgical Quality Improvement Program database was retrospectively queried to compare differences between HA and THA over time (2010-2012, 2013-2015, and 2016-2017) in blood transfusions, operation time, major complications, minor complications, and 30-day readmission among FNF patients aged ≥ 50 years. Regression analyses adjusted for age, sex, anesthesia type, smoking, body mass index, hypertension, bleeding disorder, steroid use, and American Society of Anesthesiologists classification.

Results: 16,636 patients were identified. THA was associated with higher transfusion rates in 2010-2012 (mean: 0.34 vs. 0.28, $p=0.001$) and 2013-2015 (mean: 0.21 vs. 0.19, $p=0.002$), but not in 2016-2017 (mean: 0.13 vs. 0.14, $p=0.146$). Operation time was significantly higher for THA across all periods ($p's < 0.001$), but declined over time (e.g., mean difference: 25.51 minutes in 2010-2012 vs. 17.60 minutes in 2016-2017). In recent years, THA became associated with less major (2016-2017: 5.4% vs. 10.2%, $p=0.02$; 2013-2015: 5.3% vs. 10.3%, $p < 0.001$) and minor (2016-2017: 6.2% vs. 9.8%, $p=0.02$; 2013-2015: 7.2% vs. 12.4%, $p < 0.001$) complications compared to 2010-2012 where there was no difference (major: 7.2% vs. 10.6%, $p=0.87$; minor: 12.6% vs. 10.1%, $p=0.89$). No significant differences in 30-day readmission were noted across periods.

Conclusion: THA is associated with less major and minor complications compared to HA for the treatment of FNF, despite longer surgical time. THA trends in transfusions and operation time have improved over time. There were no differences in 30-day readmission rates within the study period.