

A National Analysis of Evolving Trends in Total Hip Arthroplasty Utilization for Femoral Neck Fractures

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Introduction: Femoral neck fractures (FNF) are typically managed with internal fixation or arthroplasty, with treatment decisions influenced by patient factors and surgeon preference. Recent advancements in total hip arthroplasty (THA) have potentially broadened the subset of patients who may benefit from THA. This study evaluated THA utilization versus alternative treatments (internal fixation or hemiarthroplasty) for FNF, stratified by age.

Methods: A retrospective cohort study of the TriNetX US Collaborative Network was conducted. A total of 36,780 FNF patients who underwent surgical treatment with THA or non-THA within 72 hours from 2014-2024 were identified using ICD-10 and CPT codes. Both male and female patients were included. Outcomes included 3-year conversion THA rates following index non-THA and surgical complication rates at 90 days, 1 year, and 3 years, stratified by age. Descriptive statistics were used to summarize annual THA utilization rates. Cochran-Armitage test was used to evaluate differences in trends. Statistical significance was defined as $p < 0.01$.

Results: Among the 36,780 patients who underwent surgical treatment for FNF, 8,052 (21.9%) underwent THA. From 2014-2024, THA utilization increased significantly in the 50–59 (31.3% vs. 48.4%, $p < 0.0001$), 60–69 (32.9% vs. 40.2%, $p < 0.0001$), and 70–79 (14.6% vs. 24.6%, $p < 0.0001$) cohorts. Three-year conversion THA rates following index non-THA in the 50-59, 60-69, and 70-79 cohorts were 4.7%, 2.5%, and 1.4%, respectively. Among patients aged 50–79, conversion THA following index non-THA had increased risk of dislocation (6.2% vs 3.0%; $p = 0.0028$), periprosthetic fracture (8.0% vs 2.8%; $p < 0.0001$), and periprosthetic joint infection (6.3% vs 2.5%; $p < 0.0001$) compared with primary THA at 3-year follow-up; differences were similar at 90 days and 1 year.

Discussion: Utilization of THA for FNF increased among patients aged 50–79, and conversion THA was associated with an increased risk of surgical complications. Our findings suggest that primary THA for FNF may be a preferable option for select younger patients. Further investigation is warranted to assess long-term outcomes and refine criteria for optimal patient selection.

Significance/Clinical Relevance: Our study addresses the shift in surgical management of femoral neck fractures by quantifying national trends in THA utilization. Recognizing these trends can guide surgical decision-making and improve long-term outcomes.