

## **Choice of Stem May Impact Reoperation Following Arthroplasty for Femoral Neck Fracture**

*Emil H. Schemitsch, MD, FIOTA; Lauren Nowak, PhD, MSc; Michael Shehata, MD; Sheila Sprague, PhD; Mohit Bhandari, MDC, PhD; Sofia Bzovsky, MSc; INSITE Investigators*

**Purpose:** We sought to examine reoperation rates following cemented stem arthroplasty for femoral neck fractures (FNFs).

**Methods:** We included patients with FNFs managed via cemented stem arthroplasty from a previous randomized trial comparing total hip arthroplasty (THA) to hemiarthroplasty (HA). We grouped patients based on femoral stem component design into (1) collared composite beam (CB), and (2) collarless tapered slip (CTS) groups. We used  $\chi^2$  and Fisher exact tests to compare the unadjusted differences in complications between groups, and performed a stratified analysis to determine if any association between stem type and outcomes differed by surgery type.

**Results:** Of the 1441 patients in the HEALTH trial, we included 765 managed with cemented stems in this analysis. Of these, 242 patients (31.6%) received a CB stem, and 523 (68.4%) a CTS stem. The rate of periprosthetic fracture (PPF) was significantly lower for patients managed with a cemented (0.8%) vs uncemented stem (3.2%). The overall rate of reoperation was non-significantly higher for patients in the CTS stem group (9.9%), compared to the CB group (7.4%). The proportion of patients who underwent a reoperation due to pain was significantly higher in the CTS group (9 patients [1.7%] vs 0 [0.0%]), while the rate of reoperation due to PPF was non-significantly higher in the CTS group (5 patients [1.0%] vs 0 [0.0%]). For patients managed with HA, those in the CTS group were significantly more likely to undergo a reoperation due to pain (8 of 264 [3.0%]) compared to those who received a CB stem (0 of 146 [0.0%]). While the rate of reoperation due to PPF was higher for patients managed via THA and HA with a CTS stem (vs CB), these differences were not statistically significant (THA CTS: 3 of 259 [1.2%]; CB: 0 of 96 [0.0%]; HA CTS: 2 of 264 [0.8%]; CB: 0 of 146 [0.0%]).

**Conclusion:** These data suggest that the overall rate of reoperation for PPF following cemented stem arthroplasty is low, and those who undergo HA with a CTS stem may experience a higher rate of reoperation due to pain compared to CB stems.