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

Emil H Schemitsch[1], Lauren Nowak, Michael Shehata, Sheila Sprague[2], Sofia Bzovsky, Mohit Bhandari[3], HEALTH Investigators
[1]University of Western Ontario, [2]McMaster University, [3]CLARITY Ortho Research

INTRODUCTION:
The aim of this study was to examine reoperation rates following the use of a cemented stem when performing an arthroplasty for femoral neck fractures.
METHODS:
We included patients with femoral neck fractures managed via cemented stems from a previously published randomized trial comparing total hip to hemi-arthroplasty for this analysis. We grouped patients based on the design of the femoral stem into 1) collared composite beam (CB), and 2) collarless taper slip (CTS). We used Chi-Square 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 1,441 enrolled in the HEALTH trial, we included 857 patients managed with cemented stems in this secondary analysis. Of these, 270 patients (31.5%) received a CB femoral stem, and 587 (68.5%) received a CTS stem. Overall, the rate of peri-prosthetic 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 (9.4%), compared to the CB group (7.8%). The proportion of patients who underwent a reoperation due to pain was significantly higher in the CTS group (9 patients [1.5%] vs.0 [0.0%]), while the rate of reoperation due to PPF was non-significantly higher in the CTS group (6 patients [1.0%] vs. 1 [0.4%]).

For patients managed with hemi-arthroplasty (HA), those who received a CTS stem were significantly more likely to undergo a reoperation due to pain (8 patients of 298 [2.7%]) compared to those who received a CB stem (0 patients of 168 [0.0%]). While the rate of reoperation due to PPF was higher for patients managed via total hip arthroplasty (THA) and HA who received a CTS stem (vs. CB), these differences were not statistically significant (THA CTS: 3 patients of 289 [1.0%]; CB: 0 patients of 102 [0.0%]; HA CTS: 3 patients of 298 [1.0%]; CB: 1 patient of 168 [0.6%]).
DISCUSSION AND 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 those managed with CB stems.