

A Comparison of Cemented Versus Uncemented Hemiarthroplasty Outcomes in a Large US Integrated Health-Care System

Kanu M Okike MD; Priscilla Hannah Chan MS; Heather Ann Prentice PhD; Liz Paxton MA; Robert Alan Burri MD

Kaiser Permanente, San Diego, CA, United States

Purpose: Consensus guidelines and systematic reviews have suggested that cemented fixation is more effective than uncemented fixation in the hemiarthroplasty treatment of displaced femoral neck fractures in the elderly. Given that these recommendations are largely based on research performed outside the US, however, it is uncertain whether they also reflect the experience in the US, where the majority of hemiarthroplasties are still performed without cement. The purpose of this study was to compare the outcomes associated with cemented versus uncemented hemiarthroplasty in a large US integrated health-care system.

Methods: This was a retrospective cohort study of 12,491 patients aged ≥ 60 years who underwent cemented or uncemented hemiarthroplasty between 2009 and 2017 at 1 of 36 hospitals owned by a large US health maintenance organization. The primary outcome was aseptic revision, and the secondary outcomes were mortality (in-hospital, post-discharge, and overall), 90-day medical complications, 90-day emergency department (ED) visits, and 90-day unplanned readmission. Aseptic revision and mortality were considered competing events, and multiple regression was used to adjust for potential confounders.

Results: Among 12,491 patients in the study cohort who underwent hemiarthroplasty for hip fracture (median age 83 years, 69.3% female), 6042 (48.4%) had uncemented fixation and 6449 (51.6%) had cemented fixation. The median length of follow-up was 3.8 years (minimum 1 year; range, 1-9 years). In the multivariable regression analysis controlling for confounders, uncemented fixation was associated with a significantly higher risk of aseptic revision (HR [hazard ratio] 1.77, 95% CI [confidence interval] 1.43-2.19, $P < 0.001$). Of the 6 prespecified secondary end-points, none showed a statistically significant difference between groups (see Table).

Conclusion: Among patients with hip fracture treated with hemiarthroplasty in a large US integrated health-care system, uncemented fixation was associated with a significantly higher risk of aseptic revision than cemented fixation.