**Unipolar Hemiarthroplasty, Bipolar Hemiarthroplasty or Total Hip Arthroplasty for Hip Fracture in Older Individuals**

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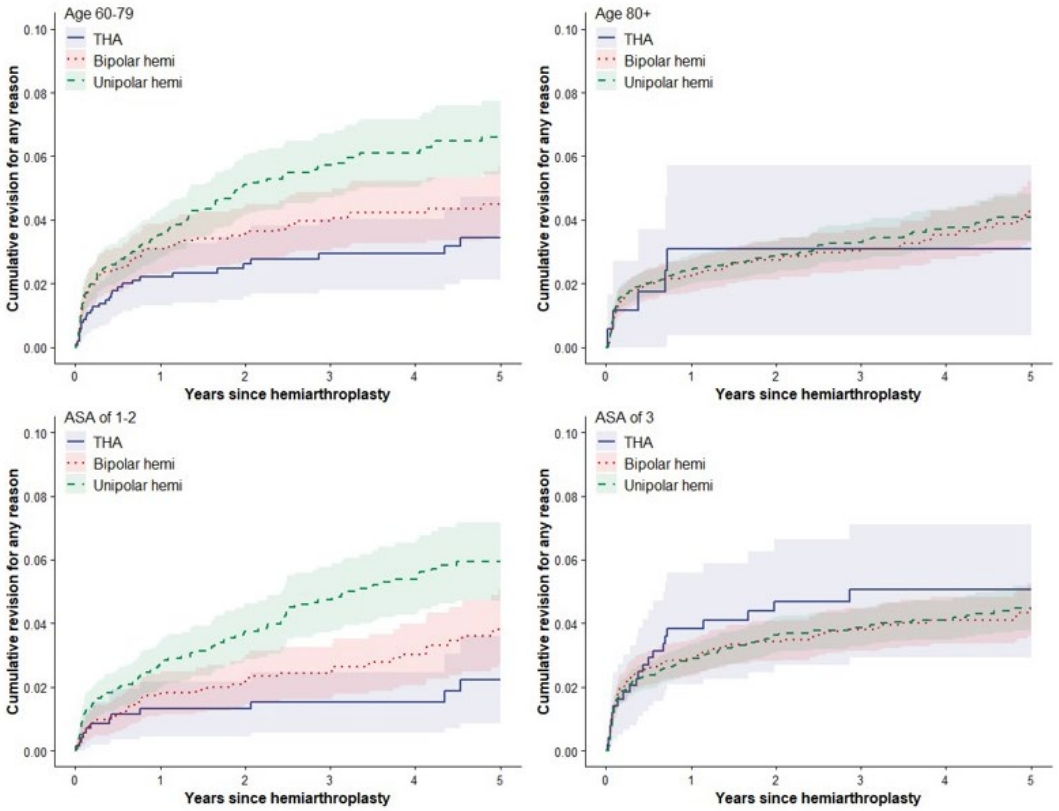
**Purpose**: Practice patterns vary widely regarding the selection of unipolar hemiarthroplasty, bipolar hemiarthroplasty, or total hip arthroplasty (THA) for displaced femoral neck fractures in the elderly, likely because there are few data stipulating the specific circumstances under which each form of arthroplasty is preferred. The purpose of this study was to determine the circumstances under which unipolar hemiarthroplasty, bipolar hemiarthroplasty, and THA are preferred due to a lower risk of all-cause revision.

**Methods**: A cohort study was conducted using a US health-care system's hip fracture registry. Patients ≥60 years of age who underwent unipolar hemiarthroplasty, bipolar hemiarthroplasty, or THA for hip fracture (2009-2021) were identified. Unipolar and bipolar hemiarthroplasty were compared to THA within specific patient subgroups defined by age (60-79 and ≥80 years) and American Society of Anesthesiologists (ASA) classification (1-2 and 3); patients with ASA ≥4 were excluded. Multivariable Cox proportional hazard regression was used to evaluate the risk of all-cause revision with adjustment for confounders. Mortality was treated as a competing risk in regression models.

**Results**: There were 14,277 patients included in the final sample (median age 82, 70% female, 69% ASA 3, median follow-up 2.5 years), including 7587 unipolar hemiarthroplasty, 5479 bipolar hemiarthroplasty, and 1211 THA. In the multivariable analysis among all patients, both bipolar (hazard ratio [HR] = 1.92, 95% confidence interval [CI] 1.31-2.80, P<0.001) and unipolar (HR = 2.15, 95% CI 1.48-3.12, P<0.001) hemiarthroplasty had higher revision risks compared to THA. In the age-stratified multivariable analysis among patients aged 60-79 years, bipolar (HR = 1.69, 95% CI 1.08-2.65, P = 0.022) and unipolar (HR = 2.17, 95% CI 1.42-3.34, P = 0.004) hemiarthroplasty had higher revision risks compared to THA. For patients aged ≥80 years, no differences in revision risk were observed compared to THA (bipolar: HR = 1.27, 95% CI 0.55-2.94, P = 0.57; unipolar: HR = 1.26, 95% CI 0.55-2.90, P = 0.58).
In the ASA-stratified multivariable analysis among patients with ASA 1-2, bipolar (HR = 1.69, 95% CI=1.08-2.65, P = 0.022) and unipolar (HR = 2.17, 95% CI 1.42-3.34, P = 0.004) hemiarthroplasty had higher revision risks compared to THA. No differences in revision risk were observed among patients with ASA 3 (bipolar: HR = 1.51, 95% CI 0.95-2.39, P = 0.084; unipolar: HR = 1.46, 95% CI 0.93-2.31, P = 0.10).

**Conclusion**: In this study of hip fractures in the elderly, THA was associated with a lower risk of all-cause revision compared to bipolar and unipolar hemiarthroplasty among patients who were 60-79 years old and ASA 1-2.

**Figure: Crude cumulative incidence of all-cause revision following bipolar or unipolar hemiarthroplasty versus total hip arthroplasty (THA) in the treatment of hip fracture.**




Note: The top panels present the incidence of all-cause revision stratified by age, including 60-79 (left panel) and 80+ (right panel). The bottom panels present the incidence of all-cause revision stratified by American Society of Anesthesiologists (ASA) classification, including 1-2 (left panel) and 3 (right panel).