

Risk of Conversion to Total Hip Arthroplasty Following Hemiarthroplasty for Hip Fracture

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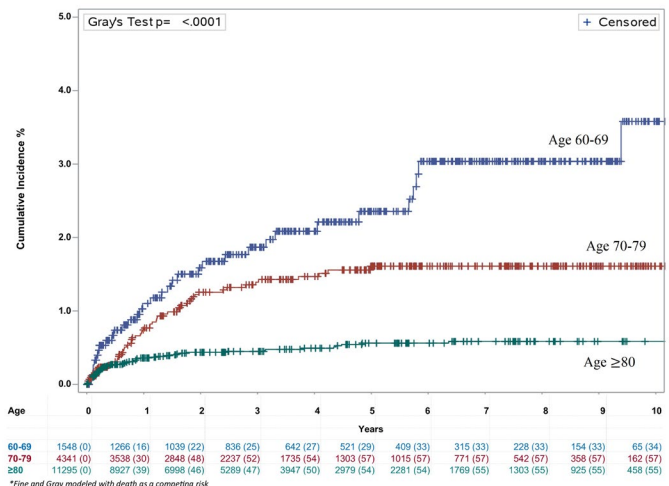
Purpose: Arthroplasty is the standard of care for displaced femoral neck fractures in the elderly, but the decision of whether to perform hemiarthroplasty (HA) or total hip arthroplasty (THA) is often a subjective one. Patients who initially receive HA but go on to require conversion THA may have been better treated with THA at the outset. The purpose of this study was to determine the incidence of, and risk factors for, conversion THA following HA for hip fracture among elderly individuals.

Methods: We used a U.S. integrated health-care system’s hip fracture registry to identify 17,184 patients aged ≥60 years who underwent HA (2009-2019), and retrospectively assessed 5- and 10-year THA conversion and mortality. Risk factors for conversion THA—including patient and surgical characteristics, comorbidities, and hospital discharge information—were assessed using time-dependent multivariable Cox proportional hazards regression with a competing risk of death. Final model selection was based on change in comparison of the Akaike Information Criterion (AIC) in subsequent paired nested models.

Results: At the time of injury, the percentage of patients who underwent HA (as opposed to THA) was 97.8% for age ≥80 years, 91.3% for age 70-79, and 73.3% for age 60-69. The cumulative incidence of conversion THA at 5 years following HA was 1.1%. By age group, the rates of conversion THA were 0.49% for age ≥80 years, 1.3% for 70-79, and 2.2% for 60-69 (Figure 1). In addition to younger age, discharge to home (as opposed to a facility) was associated with a higher risk of conversion THA (hazard ratio [HR] 1.74, 95% confidence interval [CI] 1.21-2.49, *P* = 0.003) as was depression (HR 1.73, 95% CI 1.14-2.61, *P* = 0.009). Underweight (body mass index <18.5 kg/m²) was associated with a lower risk of conversion THA (HR 0.33, 95% CI 0.12-0.92, *P* = 0.03).

Conclusion: When following current treatment guidelines, the risk of conversion THA following HA for femoral neck fracture is low. Patients who were younger, were discharged home, or had depression were at higher risk of conversion THA, while patients who were underweight were at lower risk.

Figure 1. Cumulative Incidence* of THA Conversion after Hemiarthroplasty by Age Group, 2009-2019, N=17,184



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