Hemiarthroplasty vs Total Hip Arthroplasty for Femoral Neck Fracture in the Elderly: An Analysis from the American Joint Replacement Registry

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INTRODUCTION: Debate persists regarding management of displaced femoral neck fractures in elderly patients with either total hip arthroplasty (THA) or hemiarthroplasty (HA). We investigated the United States (US) experience by comparing the risk of revision following THA or HA using the American Joint Replacement Registry (AJRR) in elderly displaced femoral neck fractures.

METHODS: Between 2012 and 2020, we identified 65,958 patients within the AJRR who were treated for a femoral neck fracture with arthroplasty. All were Medicare beneficiaries aged 65 years and older with a minimum potential follow-up of 2 years. Mean age was 82 years and 69% were female. Total hip arthroplasty was utilized in 12,537 (19%). Hemiarthroplasty was used in 53,421 (81%), of which 58% were bipolar constructs. Dual-mobility constructs were used in 11% of THAs. Femoral components were cemented in 38%. A cox proportional hazards model and a competing risk analysis were performed. Analytic groups included THA, THA with dual-mobility (THA-DM), bipolar HA, and unipolar HA. Mean follow-up was 5 years.

RESULTS: The 5-year cumulative risk of any revision was 3.5%. There were no significant differences in revision risk when comparing bipolar HA to unipolar HA, standard THA, or THA-DM. Revision risk was not statistically different between unipolar HA and THA, or THA-DM. Older age and the use of cemented femoral components were associated with a reduced risk of revision ($p<0.0001$), while patients with a higher comorbidity index sustained more revisions ($p<0.05$).

DISCUSSION AND CONCLUSION: Elderly patients with displaced femoral neck fractures in the United States have a similar risk of revision whether they are treated with a THA or HA. However, this does not account for surgeon bias, host-related factors, and other surgical technique features such as approach, limb length, and offset. Surgeons should select the best procedure based on patient functional demands and co-morbidities.