## Ambulation Distance at Discharge After Hemiarthroplasty for Femoral Neck Fracture: Is there a Magic Number?

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INTRODUCTION: Early ambulation following hemiarthroplasty for femoral neck fractures (FNFs) is associated with improved patient outcomes including reduced mortality rates. Ambulation with physical therapy is often encouraged immediately postoperatively, and early ambulation is usually defined as ambulation with or without assistive devices within 72 hours after surgery. However, patients' ambulatory distance can be highly variable and has not been studied in relation to postoperative outcomes to our knowledge. The purpose of our study was to determine if postoperative inpatient ambulation distance following primary hemiarthroplasty for FNF is associated with improved 1-year outcomes.

METHODS: We retrospectively reviewed patients who underwent primary arthroplasty for FNFs at 11 US institutions from 2010 to 2019 (Northeast, 3; Midwest, 1; South, 4; West, 3). Patients with bilateral FNF, pre-injury non-ambulatory status, or non-ambulatory at baseline were excluded. Patients without minimum 1-year follow-up were excluded also excluded except in the case of mortality. A total of 712 patients were identified; of those, 404 ambulated less than 30 feet prior to discharge (short-distance group) and 308 ambulated greater than 30 feet (long-distance group). The short-distance group had a higher rate of dementia (p=0.02), heart failure (p=0.07), and American Society of Anesthesiologists (ASA) score of 4 (p=0.0003). Patients in the long-distance group were more likely to ambulate independently prior to their injury (79% vs 62%, p<0.0001), as well as at discharge (32% vs 7%, p<0.0001). Patients in the short-distance group also had a higher rate of postoperative delirium/altered mental status (17% vs 29%, p=0.0001). Multivariable logistic regression models were performed to assess for potential confounding variables.

RESULTS: Ambulating greater than 30 feet prior to discharge was associated with a lower risk of 1-year mortality (OR 0.45, 95% CI 0.30-0.67, p=0.0001) when controlling for covariates including: ASA, surgical approach, pre-injury ambulation (assisted vs independent), HF, dementia, operative time, postoperative altered mental status, and age. DISCUSSION AND CONCLUSION:

Ambulation distance of greater than 30 feet is associated with a decreased risk of 1-year mortality following hemiarthroplasty for femoral neck fractures. This should be a target for all such patients prior to discharge to improve survival and may warrant increased use of PT in-hospital.