

Does Surgical Subspecialty affect Outcomes in Hemiarthroplasty for Femoral Neck Fractures?

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INTRODUCTION:

Little research has been done comparing techniques and patient outcomes of hemiarthroplasty (HA) for femoral neck fracture (FNF) between arthroplasty, trauma, and general trained orthopaedic surgeons. This study aimed to compare management practices and outcomes of HA for femoral neck fracture FNF performed by surgeons with different subspecialty training.

METHODS:

This multicenter study retrospectively reviewed 1,013 HA performed for FNF. 410 cases were performed by fellowship-trained orthopaedic trauma surgeons, 301 were performed by arthroplasty-trained orthopaedic surgeons, and 302 were performed by general orthopaedic surgeons. Patient characteristics, management, and outcomes were compared independently using Kruskal-Wallis tests, Fischer exact tests, and chi-square tests for continuous, binary and nonbinary categorical variable respectively. Multivariable analysis was conducted with the primary independent variable being fellowship training using logistic and linear regressions for binary and continuous variables respectively. A P-value<0.05 was considered statistically significant.

RESULTS:

Patient comorbidities were similar between groups except for peripheral vascular disease (PVD), liver disease, coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), and delirium (Table 1). Injury characteristics were similar between groups apart from Pauwels fracture classification (Table 2).

Arthroplasty-trained (81 min, p<0.001) and general orthopaedic surgeons (98 min, p=0.008) had shorter operative times than orthopaedic trauma surgeons (106 minutes) and utilized tranexamic acid (TXA) more frequently (32.9% and 20.9% vs 13.9%, p<0.001). Arthroplasty surgeons (17.6%) were more likely to use an anterior approach than trauma (4.4%) or general orthopaedic surgeons (0.7%, p<0.001) (Table 3).

After adjusting for covariates (Table 6), patients of arthroplasty surgeons (6.3 days) and generalists (6.1 days) had shorter lengths of stay compared to orthopaedic trauma specialists (9.4 days, p<0.001), less intensive care unit (ICU) stays (11.6% vs 23.6%, p=0.009; 12.6% vs 23.6%, p=0.004) and greater ambulation distance at discharge (47.2 vs 30.0 feet, p=0.006; 49.3 vs 30.0 feet, p<0.001) (Table 4). Generalists compared with trauma-trained specialists had lower 90-day (12.6% vs 20.5%, p=0.04) and 1-year mortality rates (24.7% vs 35.1%, p=0.015) after adjusting for comorbidities (Table 5). There was no difference between patients of arthroplasty versus trauma or general orthopaedic surgeons in 90 day or 1 year mortality (p>0.05) (Table 5). Dislocation, infection, revision, and 2-year mortality were similar between all groups (p>0.05) (Table 5).

DISCUSSION AND CONCLUSION: Orthopaedic generalists, arthroplasty and trauma subspecialists who performed HA for FNF resulted in similar postoperative complications and 2-year mortality. Arthroplasty surgeons and generalists had better in-hospital and discharge metrics as evidenced by improved post-operative weight bearing status, less frequent ICU stays, shorter length of total hospital stay, and increased ambulation distance at discharge. Improved outcomes could be due to differences in surgical approach, use of TXA, and operative time between subspecialists or differences in fellowship training. While long term outcomes are similar between surgeon groups, standardizing operative procedures and post operative care between subspecialists may further improve short-term outcomes for FNF patients undergoing HA.

TABLE 1	TABLE 2	TABLE 3	TABLE 4	TABLE 5	TABLE 6
TABLE 1: Patient Characteristics	TABLE 2: Injury Characteristics	TABLE 3: Management	TABLE 4: Outcomes	TABLE 5: Mortality	TABLE 6: Multivariable Analysis
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