The Effect of Surgeon Subspecialty Training on Type of Operation for Proximal Humerus Fractures in Patients Over 50-year-old

Erika Roddy, Utku Kandemir

INTRODUCTION: The purpose of this study was to determine how surgeon fellowship training influences type of surgical treatment for proximal humerus fractures in patients over 50-year-old. We hypothesized that sports medicine/shoulder trained surgeons would be more likely to treat all types of proximal humerus fractures with arthroplasty, that trauma trained surgeons would be more likely to treat with open reduction internal fixation, and that dual-trained (trauma and shoulder) surgeons would fall in the middle.

METHODS: We retrospectively reviewed all proximal humerus fractures and fracture-dislocations treated operatively at our institution between 2011 and 2020. Surgeons were classified into trauma-trained (completed trauma fellowship), shoulder-trained (completed a sports medicine/shoulder fellowship) and dual-trained (completed both trauma and sports medicine/shoulder fellowship). Univariate analysis was used to determine patient, fracture, and surgeon characteristics associated with treatment with arthroplasty versus open reduction internal fixation (ORIF). Logistic regression analysis was used to perform multivariate analysis.

RESULTS: Eighty-three patients were included in the final cohort. Factors associated with receiving arthroplasty included surgeon training type, fracture classification, ASA class, age, and insurance type. Trauma-trained surgeons exclusively performed ORIF, while shoulder trained surgeons performed RTSA in 35/38 cases (92%), and the dual-trained surgeon performed RTSA in 7/29 cases (24%) ($p<0.001$). In multivariate analysis including age, fracture classification, ASA class, and surgeon type, fracture-dislocation and surgeon type alone remained predictive of arthroplasty. Shoulder trained surgeons were 690 times more likely to perform arthroplasty compared to dual-trained surgeons (95% CI 16-30,599, $p=0.001$).

DISCUSSION AND CONCLUSION: In this retrospective review of surgically treated proximal humerus fractures, surgeon training was the strongest predictor of whether patients received arthroplasty versus open reduction internal fixation.