

Conversion to Arthroplasty After Open Reduction and Internal Fixation of Geriatric Proximal Humerus Fractures

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Purpose: The 3 most common surgical treatment options for geriatric proximal humerus fractures (PHFx) are open reduction and internal fixation (ORIF), hemiarthroplasty (HA), and shoulder arthroplasty (SA). This study aimed to use a state-wide discharge database to analyze the rate of conversion to SA after ORIF and compare the 10-year reoperation rates of these 3 procedures.

Methods: All patients 65 years or older who underwent either ORIF, HA, or SA for PHFx between 2000 and 2017 were included. Survival analysis was performed with either hardware removal, revision ORIF, conversion to arthroplasty, or revision arthroplasty as the end point. Risk factors for 30-day readmission, short-term complications, and conversion or reoperation were identified.

Results: A total of 27,102 geriatric PHFx patients were identified between 2000 and 2017 (Table 1). Among ORIF patients, the 10-year conversion-free survival rate was found to be 91.8%. Overall 10-year reoperation-free survival rates were found to be 87.9% for ORIF patients and greater than 96% for both HA and SA patients (Figure 1). Compared to ORIF patients, HA and SA patients experienced shorter length of stay and had a lower risk of 30-day readmission and short-term complications. Older age was a risk factor for short-term adverse outcomes but protective against the need for reoperation, and female sex was associated with increased risk of requiring conversion to arthroplasty after ORIF.

Conclusion: The 10-year rate of conversion to arthroplasty for geriatric PHFx patients undergoing ORIF was found to be 8.2%. Long-term reoperation rates, risk of short-term complications, and 30-day readmission rates were all significantly lower among patients undergoing SA or HA compared to ORIF, but did not significantly differ between SA and HA patients.

Table 1. Patient Characteristics and Outcomes by Treatment Group

Variable	ORIF (N=12,000)	Hemi (N=6,567)	TSA/RTSA (N=8,535)	P value
Age (yrs)	77.4	77.8	77.8	<0.001
Female (%)	79.1	81.2	82.3	<0.001
Hispanic (%)	12.6	12.5	12.8	0.787
Insurance (%)				0.115
Medicare	87.2	88.3	88.1	
Medical	2.2	2.1	2.0	
Workers Compensation	1.1	1.0	1.1	
Other	1.0	0.6	0.7	
Unknown	8.6	7.9	8.2	
Teaching Hospital (%)	13.0	11.5	13.5	0.001
Morbid obesity (%)	1.3	1.3	1.6	0.090
Diabetes (%)				0.133
Uncomplicated	3.6	3.5	3.6	
Chronic complications	1.7	1.5	1.6	
Acute complications	0.1	0.02	0.04	
Vascular complications	0.8	0.6	0.8	
Concomitant Atherosclerosis (%)	5.5	4.6	4.9	0.010
Length of stay (days)	4.5	4.7	4.4	<0.001
30 day readmission (%)	10.4	8.4	8.1	<0.001
Major Complication (%)	8.2	6.7	6.5	<0.001

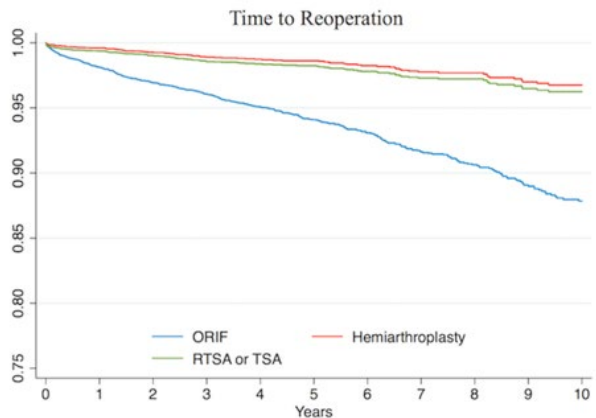


Figure 1. Kaplan-Meier survival curves with respect to any reoperation after surgical management of geriatric proximal humerus fractures.

The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or medical device they wish to use in clinical practice.

POSTER ABSTRACTS