Does Orthopaedic Subspecialty Training Affect Treatment Decision-Making and Outcomes for Displaced Femoral Neck Fractures

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INTRODUCTION: Approximately 1.3-2.2 million femoral neck fractures occur each year, with up to 80% being displaced requiring hemiarthroplasty or total hip arthroplasty (THA). The optimal treatment for displaced femoral neck fractures has been debated with literature and surgeon preference supporting both hemiarthroplasty and THA. Our objective was to determine if subspecialty training plays a role in treatment decision-making and outcomes of displaced femoral neck fractures.

METHODS: Retrospective analysis was performed of 386 patients who underwent hemiarthroplasty or THA for displaced femoral neck fracture at an academic system between January 2017 and December 2023. To assess the impact of subspecialty training, patients were stratified based on fellowship training: Adult reconstruction fellowship (AR) or other orthopaedic training (Non-AR). Procedure duration, 90-day postoperative complications, length of stay, and discharge disposition were compared between the cohorts.

RESULTS: AR trained surgeons performed THA 31.8% of the time for patients with femoral neck fractures compared to 10.5% for Non-AR trained surgeons ($p<0.001$). Procedure duration was significantly shorter for both hemiarthroplasty (80.4 mins vs 90.1 mins; $p=0.01$) and THA (94.9 mins vs 132.6 mins; $p=0.01$) when performed by an AR trained surgeon (overall $p=0.01$). THA patients were more likely to be discharged home when treated by an AR surgeon (55.3% vs 28%; $p=0.03$).

DISCUSSION AND CONCLUSION: Subspecialty training plays a role in decision-making, procedure duration and discharge disposition for femoral neck fractures. AR trained surgeons are more likely to perform THA for femoral neck fracture when compared to Non-AR trained surgeons. AR trained surgeons complete hemiarthroplasty and THA significantly faster compared with Non-AR trained surgeons, and were more likely to discharge patients home postoperatively.

Table 1. Patient Demographics; N (%) or Mean (SD)

	Hemiarthroplasty			Total Hip Arthroplasty			Total		
	AR	Non-AR	P-value	AR	Non-AR	P-value	AR	Non-AR	P-value
Age	83.6 (9.5)	84.1 (9.5)	0.70	70.5 (11.6)	73.2 (10.1)	0.33	79.5 (11.9)	82.9 (10.2)	**0.01**
BMI	24.1 (5.3)	24.3 (4.8)	0.85	26.6 (5.9)	24.2 (5.6)	0.14	24.9 (5.6)	24.3 (4.9)	0.24
ASA			0.41			0.43			0.06
1	0 (0.0)	0 (0.0)		0 (0.0)	1 (3.8)		0 (0.0)	1 (0.4)	
2	14 (14.9)	30 (14.4)		20 (43.5)	7 (26.9)		36 (24.5)	37 (15.8)	
3	62 (66.0)	151 (72.2)		21 (45.7)	16 (61.5)		88 (60.0)	167 (71.4)	
4	18 (19.1)	28 (13.4)		5 (10.9)	2 (7.7)		23 (15.6)	29 (12.4)	
Gender			0.11			0.85			0.24
Female	61 (60.4)	148 (69.5)		33 (70.2)	17 (68.0)		94 (63.5)	165 (69.3)	
Male	40 (39.6)	65 (30.5)		14 (29.8)	8 (32.0)		54 (36.5)	73 (30.7)	
Disposition			0.20			**0.03**			0.08
Home	7 (6.9)	26 (12.2)		26 (55.3)	7 (28.0)		33 (22.3)	33 (13.9)	
SNF/SAR	93 (92.1)	181 (85)		20 (42.6)	18 (72.0)		113 (76.4)	199 (83.6)	
Expired	1 (1.0)	6 (2.8)		1 (2.1)	0 (0.0)		2 (1.4)	6 (2.5)	
Procedure									
Hemi							101 (68.2)	213 (89.5)	**<0.001**
THA							47 (31.8)	25 (10.5)	

Table 2. Surgical and Clinical Outcomes; N (%) or Mean (SD)

	Hemiarthroplasty			Total Hip Arthroplasty			Total		
	AR	Non-AR	P-value	AR	Non-AR	P-value	AR	Non-AR	P-value
Procedure Duration	80.4 (27.4)	90.1 (25.6)	**0.01**	94.9 (36.6)	132.6 (83.2)	**0.01**	84.9 (31.3)	94.6 (38.5)	**0.01**
LOS	7.1 (6.3)	6.2 (3.6)	0.12	5.7 (8.2)	7 (3.8)	0.48	6.7 (7.0)	6.3 (3.6)	0.51
Complications			0.64			0.74			0.79
Dislocations	6	6		1	1		7	7	
Pulmonary Embolism	0	1		0	0		0	1	
Periprosthetic Fracture	1	1		0	1		1	2	
Mortality	1	6		0	0		1	6	
Total	8	14		3	2		11	16	

Procedure Duration in Minutes; LOS (Length of Stay) in Days