ORIF Results in More Complications and Reoperations than THA for Femoral Neck Fractures in Patients Aged 40-49

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INTRODUCTION:
Femoral neck fractures in patients under the age of 50 are uncommon, but difficult problems to manage. The purpose of this study is to compare the outcomes of femoral neck fractures in patients aged 40-49 treated with open reduction internal fixation (ORIF) versus total hip arthroplasty (THA).
METHODS:
This was a Retrospective Cohort Study at 6 level-1 trauma centers. Patients aged 40-49 who underwent operative management for femoral neck fractures between 2013 and 2023 with at least 12 weeks of follow up were included. Patient demographics, injury details, clinical outcomes and complications of the two cohorts (ORIF, THA) were recorded.
RESULTS:
92 patients with a mean age of 45.2± 3.0 years were included in analysis and followed for 75.5 weeks (range: 12-544). Seventy patients were included in the internal fixation cohort, while 22 were included in THA. When comparing the ORIF and THA groups, no difference in mechanism of injury (p=0.732), Pauwel's classification (p=0.869), Garden classification (p=0.134), and subtype of femoral neck fracture between groups (p=0.415) was observed.

In the ORIF group, quality of reduction was graded excellent in 50 (71.4%), good in 13 (18.6%), fair in 6 (8.6%) and poor in 1 (1.4%). Fixed angle constructs were more likely to be utilized in displaced femoral neck fractures (68.9% vs 44%; p=0.042). Non-fixed angle constructs (i.e. cannulated screws) were significantly more likely to experience complications (76.9% vs 35.7%; p=0.032) and reoperation (61.5% vs 14.3%; p=0.011) in displaced femoral neck fractures than nondisplaced.

The ORIF cohort experienced significantly more complications than THA (47.1% vs 18.2%, p=0.015). The reoperation rate was 32.8% in the ORIF group and only 4.5% in the THA group (p=0.008). Within the ORIF cohort, patients with a displaced femoral neck fracture experienced a 42.2% reoperation rate as compared to 16% in the nondisplaced group (p=0.025).
DISCUSSION AND CONCLUSION:
There is limited consensus on the management of femoral neck fractures in patients aged 40-49. Patients undergoing ORIF are 4.01 times more likely to have a complication (p=0.024) and 10.3 times more likely to have a reoperation (p=0.01) than those who have a THA. Further large-scale studies are needed.

Table: Complications

	ORIF (n= 70)				THA (n= 22)				ORIF vs THA
	Entire Cohort	Displaced (n= 45)	Non-Displaced (n= 25)	*p*	Entire Cohort	Displaced (n= 17)	Non-Displaced (n= 5)	*p*	*p*
Overall Complications	33 (47.1%)	25 (55.6%)	8 (32%)	0.058	4 (18.2%)	4 (23.5%)	0	-	**0.015**
Reoperation	23 (32.8%)	19 (42.2%)	4 (16%)	**0.025**	1 (4.5%)	1 (5.9%)	0	-	**0.008**
Conversion to Arthroplasty	14 (20%)	12 (26.7%)	2 (8%)	0.144	-	-	-	-	-
Superficial Infection	1 (1.4%)	1 (2.2%)	0	-	0	0	0	-	-
Deep Infection	3 (4.3%)	2 (4.4%)	1 (4%)	0.931	0	0	0	-	-
Nonunion	8 (11.4%)	8 (17.8%)	0	-	-	-	-	-	-
Avascular Necrosis	3 (4.3%)	3 (6.7%)	0	-	-	-	-	-	-
Loss of Reduction	5 (7.1%)	5 (11.1%)	0	-	-	-	-	-	-
Implant Failure	4 (5.7%)	3 (6.7%)	1 (4%)	0.651	1 (4.5%)	1 (5.8%)	0	-	0.835
Post-Traumatic Arthritis	8 (11.4%)	6 (13.3%)	2 (8%)	0.509	-	-	-	-	-
Heterotopic Ossification	3 (4.3%)	2 (4.4%)	1 (4%)	0.931	3 (13.6%)	3 (17.6%)	0	-	0.124
Symptomatic Implants	9 (8.3%)	7 (15.6%)	2 (8%)	0.373	0	0	0	-	-