

COMPARATIVE STUDY OF FUNCTIONAL OUTCOMES OF CEMENTED VERSUS CEMENTLESS BIPOLAR HEMIARTHROPLASTY  
IN DISPLACED INTRACAPSULAR NECK OF FEMUR FRACTURES

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INTRODUCTION

Hip fractures are common injuries with complications that can be life-threatening, where femoral neck fractures are a specific type of intracapsular hip fractures. The risk of hip fracture rises with age. Treatment is generally operative with closed or open reduction and internal fixation versus arthroplasty depending on the age, activity demands and pre-injury mobility. Displaced intra-capsular fractures often disrupt the blood supply to the femoral head and, therefore, usually avascular necrosis occurs with fixation of these fractures. Hemiarthroplasty is a common surgery done for displaced femur neck fractures. Hemiarthroplasty can be subdivided into Unipolar and Bipolar. Unipolar arthroplasty is more associated with a high rate of acetabular erosion. Bipolar hemiarthroplasty can be either cemented into the femoral canal or uncemented with press-fit technique. Before surgery, the type of stem is determined according to Dorr classification of the proximal femur and cortical thickness on pre-operative radiographs.

AIM OF THE WORK

The aim of this study was to compare the functional outcomes of cemented versus cement less bipolar hemiarthroplasty in displaced intracapsular neck of femur fractures.

SUBJECTS AND METHODS

- This study included 30 patients with fracture neck of femur aged over 60 years.15 cases were managed with Cemented bipolar hemiarthroplasty (Group A) and 15 cases were treated with Cementless bipolar (Group B) hemiarthroplasty.
- All patients will be followed up both clinically and radiologically over a minimum period of 6 months.
- Oxford Hip Score was used for clinical evaluation of patients.

RESULTS

Table 1: Comparison of the two study groups according to operative time

Operative time (min)	Group A (n = 15)	Group B (n = 15)	t	P
Min. – Max.	60.0 – 120.0	55.0 – 95.0	2.069*	0.049*
Mean ± SD.	82.67 ± 15.68	72.33 ± 11.32		
Median (IQR)	80.0 (72.5 – 92.5)	70.0 (65.0 – 77.5)		

t: Student t-test  
p: p value for comparing between the studied groups  
\*: Statistically significant at  $p \leq 0.05$   
IQR: Inter quartile range  
SD: Standard deviation  
Group A:Cemented bipolar hemiarthroplasty.  
Group B:Cementless bipolar hemiarthroplasty

Table 2: Comparison of the two study groups according to blood loss

Blood loss	Group A (n = 15)	Group B (n = 15)	t	p
Min. – Max.	110.0 – 450.0	100.0 – 300.0	2.221*	0.035*
Mean ± SD.	233.33 ± 87.31	165.33 ± 80.26		
Median (IQR)	250.0 (200 - 275)	150.0 (100 - 220)		

t: Student t-test  
p: p value for comparing between the studied groups  
\*: Statistically significant at  $p \leq 0.05$   
IQR: Inter quartile range  
SD: Standard deviation  
Group A: Cemented bipolar hemiarthroplasty.  
Group B: Cementless bipolar hemiarthroplasty.

Table 3: Distribution of the studied patients group regarding the final score assessment.

Final result	Group A (n = 15)		Group B (n = 15)		$\chi^2$	MCp
	No.	%	No.	%		
Poor	2	13.3	0	0.0	2.749	0.471
Fair	2	13.3	1	6.7		
Good	6	40.0	6	40.0		
Excellent	5	33.3	8	53.3		

$\chi^2$ : Chi square test  
MC: Monte Carlo  
p: p value for comparing between the studied groups  
Group A: Cemented bipolar hemiarthroplasty.  
Group B: Cementless bipolar hemiarthroplasty.

CONCLUSION

No clinical or functional advantage between cemented and cementless bipolar prosthesis was found and both gave approximately similar results. Patients with fracture neck of femur who were older than 60 years of age and underwent cemented bipolar prosthesis were associated with longer operation time, more intra-operative blood loss. The two groups did not significantly differ in terms of length of hospital stay, residual thigh pain, dislocation of prosthesis, post operative infection.