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To Study the Outcome of Bipolar Hemiarthroplasty for the Treatment of Fracture Neck of Femur

Dr Akash Kumar Agarwal[1], Dr Ajit Tudu[2], Dr Bijoy Kumar[3], Dr Rajesh Kumar Malwa[4]

[1] (Post Graduate, Department of Orthopedics, RIMS, Ranchi Jharkhand)
[2] (Senior Resident, Department of Orthopedics, RIMS, Ranchi, Jharkhand)
[3] (Associate Professor, Department of Orthopedics, RIMS, Ranchi, Jharkhand)
[4](Post Graduate, Department of Orthopedics, RIMS, Ranchi Jharkhand)

Abstract:
Background*: To study the outcome of bipolar hemiarthroplasty for the treatment of fracture neck femur, To study the functional and radiological outcome after bipolar hemiarthroplasty, To study the bipolar hemiarthroplasty in terms of Operative time, Blood loss ,Intraoperative hypotension ,Mobilization following surgery, Periprosthetic fracture, Hip dislocation, Postoperative pain and function, Incidence of infection ,Reoperation Duration of stay at hospital, Limb edema ,Thromboembolism.*
Materials and Methods*: It is a hospital based observational study. on admission detailed history was taken and a complete examination was done. They were observed regularly during their hospital stay till they get discharged. They were asked to come for follow-up regularly to the outpatient department.*
Results*: In our study majority (56.7%) of the patient were female with 33.33% patient have excellent result, 40% have good, 16.67% have fair and10% have poor result.*
Conclusion: *We conclude that fracture neck femur is common fracture in elderly. Bipolar hemiarthroplasty provides excellent treatment by providing better range of movement, pain relief and overall better functional outcome*

Key Word*: Geriatric population, Post menopause, Osteoporotic, Intracapsular part, Hemiarthroplasty, Periprosthetic fracture*

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I. Introduction

For decades, fracture neck of femur is associated with one of most serious health problems affecting geriatric population. It is associated with high risk of morbidity, low quality of life and premature mortality. The term "femoral neck fracture" is most often used to describe a fracture through the intracapsular part of the femoral neck. The lifetime risk of sustaining a hip fracture is high and lies within range of 40% to 50% in women and 13% to 22% in men. Incidence of hip fractures is 159/100,000 population in India and out of these 50% are fracture neck of femur [1].The incidence of these fracture are expected to be double in next twenty years and triple by 2050[2].The prevalence of fracture also doubles for each decade after fifth decade [3].With increase in geriatric population, the burden of this fracture and its sequelae continue to be on rise. Incidence of femur neck fracture in young is low and it is due to high velocity trauma whereas its incidence is high in elderly and is mainly a result of low energy falls. The risk of falling increases with age due to risk factors which include muscle weakness, abnormal gait, neurologic disease, deteriorating eyesight and medications with sedative and cardiovascular side effects. Risk factors associated with fracture neck femur are osteoporosis (particularly in postmenopausal women), female sex, increasing age, tobacco and alcohol consumption, metastatic disease and metabolic bone diseases.

II. Material and Methods

Study Design: Hospital based observational study
Study Location: Patient admitted for fracture neck of femur under the department of orthopedics, Rims Ranchi
Study Duration: January 2021 to January 2022
Sample Size: 30 Patients
Subjects & selection method: selection of patients: The study was conducted on 30 patients fulfilling the inclusion criteria admitted with fracture neck of femur under orthopedics department from January 2021 to January 2022.

Inclusion criteria: 1. Patients with age group > 60 years.
2. Either sexes.
3.Closed displaced intracapsular fracture neck of femur

Exclusion Criteria:
1. Patients with age group < 60 years.
2. Patients with radiological evidence of extracapsular fracture neck of femur.
3. Valgus impacted fracture.
4. Patients with other associated fractures of the ipsilateral femur and acetabulum along with fracture neck of femur.
5. Presence of active infection around hip.
6. Patients with presence of neuromuscular disease or palsy.

Procedure Methodology: Once the patient was admitted to the hospital, all the essential information was recorded in the proforma prepared for this study. They were observed regularly during their hospital stay till they get discharged. They were asked to come for follow-up regularly to the outpatient department. Those who did not come were reminded by post. The follow-up summary was recorded in the follow-up chart of the proforma.

III. Result

Table No-1: Age distribution of patients in both the study groups

Age Distribution Results				
	60-70y	71-80y	>80y	Total
Frequency	11	16	3	30
Percentage	36.67%	53.33%	10%	100%

Table No-2: Sex distributions of patients in both the study groups

Sex Distribution Results			
	Male	Female	Total
Frequency	13	17	30
Percentage	43.3%	56.7%	100

Table No-3: Distribution of the sample by criteria of side of affection

Side Distribution Results			
	Right	Left	Total
Frequency	14	16	30
Percentage	46.7%	53.3%	100%

Table No-4: Distribution of the sample by criteria of mechanism of injury

	Mechanism of Injury Results			
	RTA	Fall from height	Tripping/slipping	Total
Frequency	2	4	24	30
Percentage	6.67%	13.33%	80%	100%

Table No-5: Distribution according to type of fracture

Prosthesis	Garden type			
		Type 3	Type 4	Total

Uncemented	Frequency	14	16	30
	Percentage	46.67%	53.33%	100%

Table No-6: Distribution of the sample by associated medical and surgical problems

Distribution of associated medical problems Results						
	HTN	DM	ANAEMI A	COPD	LVH	CLD
Frequency	5	5	9	4	3	2
Percentage	16.7%	16.7%	30%	13.3%	10%	6.7%

Table No-7: Distribution of sample by time elapsed from admission date to date of surgery

Results				
	<7days	7-14days	>14days	Total
Frequency	12	16	2	30
Percentage	40%	53.3%	6.7%	100%

Table No-8: Distribution of sample by the amount of blood loss

Amount of blood loss	
<175 ml	7
175 – 200 ml	21
>200 ml	2

Table No-9: Distribution of the sample by complications

Complications	Frequency	Percentage
Death	0	0
Periprosthetic fracture	2	6.67%
Prosthesis dislocation	2	6.67%
Limb length discrepancy	3	10%
Deep Infection	0	0
Superficial Infection	3	10%
Heterotopic ossification	2	6.67%
Bedsore	2	6.67%
Thromboembolism	0	0
BCIS	0	0
Sciatic Neuropraxia	0	0

Table No-10: Progression of HHS Score over 12 months

HHS Score	
	Average
6 weeks	58.14
3 months	68.86

6 months	78.38
12 months	84.49

Table No-11: Distribution according to day of full weight bearing

Day of full weight bearing			
	Immediate	Delayed	Total
Frequency	25	5	30
Percentage	83.33%	16.67%	100%

Table No-12: Final Harris Hip Score and clinical result

Grade	Harris Hip Score	No. of patients	Percentage
Excellent	90-100	10	33.33
Good	80-89	12	40
Fair	70-79	5	16.67
Poor	<70	3	10

Table No- 13: Comparison of clinical result with standard studies

Grade	Our study	Moshein[7]	Lestrange study[8]
Excellent	33.33	40	39.6
Good	40	25	31.2
Fair	16.67	23	15.3
Poor	10	12	13.9

IV. Discussion

Femoral neck fractures are common injuries among elderly people. Fracture neck of femur is still an unsolved enigma for an orthopedic surgeon. Results have been variable with various modalities of treatment which includes osteosynthesis, hemi replacement and total hip replacement. Since osteosynthesis is not a very good idea for elderly population, as secondary procedure may be required on its failure and elderly patients may not be able to tolerate effects of second surgery, prosthetic replacement has become a popular choice among surgeons. Also, in a developing country like ours, total hip arthroplasty is not preferred as primary procedure as it is technically more demanding and expensive. Hence hemi replacement procedure continues to be a favored option. With this as an idea we undertook the present study to evaluate the immediate results of hemiarthroplasty in fracture neck of the femur in geriatric population using bipolar prosthesis keeping in view the living condition of an average Indian. The results were analyzed and observations were made. This study was compared to the similar studies by other authors.

V. Conclusion

Fracture neck femur is common fracture in elderly. Bipolar hemiarthroplasty provides excellent treatment by providing better range of movement, pain relief and overall better functional outcome. Thirty cases of fracture neck of femur in elderly patients above the age of 60 years treated by hemiarthroplasty using bipolar prosthesis in the Department of Orthopedics at Rajendra Institute of Medical Sciences, Ranchi from March 2021to August 2022. The cases were followed up for 1 year and functional results were analyzed by using modified Harris hip scoring system and radiological assessment. The patients were in the age group of 60 to 84 years with mean average age of 72.33 years. Females were predominant. Majority of the fractures were sub capital radiologically. Timing of surgery do not affect outcome but better to go for surgery as soon as patient

general condition allows anesthesia. There is slight increase in Harris hip score over a period of 12 month and overall functional result at end of 12 months were better for most of the patients. There were 33.33% excellent results and 40% good results, satisfactory results were seen in another 16.67%. Poor results were seen in 10% of cases. The poor results (10%) were due to moderate to marked pain in the hip or thigh after hemiarthroplasty. No patient was lost to follow up or due to mortality. The success of hemiarthroplasty no doubt depends on preoperative planning and proper attention to surgical details to achieve the optimum biomechanical stability. We conclude that hemiarthroplasty for fracture neck of femur is a good option in elderly patients. The mortality and morbidity are not high, operative procedure is simple, complications are less disabling. Early functional results are satisfactory. The complications are less disabling, weight bearing is early, early functional results are satisfactory and second operation is less frequently required.

References

[1]. Dinesh K Dhanwal, Elaine M Dennison, Nick C Harvey, Cyrus Cooper Epidemiology of hip fracture: Worldwide geographic variation. Indian J Orthop 2011 Jan-Mar; 45(1): 15–22.

[2]. Schmidt AH, Swiontkowski MF. Femoral neck fractures. Orthop Clin North Am 2002; 33(1):97-111.

[3]. Leighton RK: Fractures of the Neck of the Femur. In: Rockwood and Green's fracture in Adults. Ed: Bucholz RW, Heckman JD, Court-Brown CM. 6th edn. Philadelphia, Lippincott Williams & Wilkins 2006; 1753-1791.

[4]. Foster AP, Thompson NW, Wong J, Charlwood AP: Periprosthetic femoral fractures--a comparison between cemented and uncemented hemiarthroplasties. Injury. 2005;36(3):424-429

[5]. S Jameson, P James, A Rangan, S Muller, and M Reed; Cemented versus uncemented hemiarthroplasty for intracapsular fractured neck of femur - a national analysis of matched NHS patients; J Bone Joint Surg Br Proceedings 2012 94-B:29

[6]. Hansen SK, Brix M, Birkelund L, Troelsen A: Can introduction of an uncemented, hydroxyapatite coated hemiarthroplasty for displaced femoral neck fractures be recommended? Hip International. 2010;20(1):109-114

[7]. Mukherjee D.L.(Col), Maj. Gen. H.C. Puri. Early hemiarthroplasty for fresh fractures of the neck of the femur in geriatric patients. Indian Journal of Surgery 1986;Vol. 48: 77-80. Harris WH. Traumatic arthritis of the hip after dislocation and acetabular fractures: Treatment by mould arthroplasty. An end result study using a new method of result evaluation. J Bone Joint Surg Am 1969;51-A (4):737-755

[8]. Wender Figved MD, Vidar Opland MD, Frede Frihagen MD, Tore Jervidalo MD, Jan Erik Madsen MD, PhD, Lars Nordsletten MD, PhD Clin Orthop Relat Res (2009) 467:2426–2435

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