

Evaluation of functional outcome of fracture neck femur with fixed cemented bipolar hemiarthroplasty by prospective study

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Abstract

Background: The most frequent injury leading to morbidity and death in the older age group is fractured neck femur, which is becoming more common in the elderly. Orthopaedic surgeons have historically had difficulty treating femur neck fractures. Avascular necrosis and non-union are frequent complications. Female sex, white race, advancing age, poor health, cigarette and alcohol use, prior fracture, history of falls, and low oestrogen level are risk factors. The frequency of femur neck fractures varies by age group. 95% of instances affect senior age groups, with only 5% affecting younger age groups. After the age of 30, the age-specific incidence of hip fracture has been seen to double every 6-7 years, reaching 18 fractures per 1000 per year over 85.

Aim-To assess the functional outcome of fixed cemented bipolar hemiarthroplasty in

Materials and Methods- A prospective study was done on patients with fracture neck femur coming to orthopaedic department at tertiary care centre for duration of 2 years. Total 30 patients were included in study. IBM SPSS Version 21 was used for descriptive statistics and to calculate paired ‘t’ test. Microsoft Excelbook 2019 was used to prepare tables and graphs. P value < 0.05 was set for significance.

Results: The mean age of patient was 71-8yr majority of female with time of injury to admission about 3 hrs had mean harris score after 6 month of follow up 81.79.

Conclusion: Considering the complication rates, elderly patients with fractured femur necks who underwent cemented bipolar hemiarthroplasty reported good

outcomes in terms of range of motion, pain-free movements, return to daily activities, and independent activity.

Keywords: Cemented, Hemiarthroplasty, Bipolar.

Introduction

The most frequent injury leading to morbidity and death in the older age group is fractured neck femur, which is becoming more common in the elderly.¹ Orthopaedic surgeons have historically had difficulty treating femur neck fractures. Avascular necrosis and non-union are frequent complications. Female sex, white race, advancing age, poor health, cigarette and alcohol use, prior fracture, history of falls, and low oestrogen level are risk factors. The frequency of femur neck fractures varies by age group. 95% of instances affect senior age groups, with only 5% affecting younger age groups.² After the age of 30, the age-specific incidence of hip fracture has been seen to double every 6-7 years, reaching 18 fractures per 1000 per year over 85.³

Aim and Objectives

AIM: To assess the functional outcome of fixed cemented bipolar hemiarthroplasty in intracapsular fracture neck femur

Objectives

- To find out complications associated with cementing bipolar hemiarthroplasty.
- To find out the reoccurrence of fracture after bipolar hemiarthroplasty.
- To check for the acetabular erosion in patients treated with fixed cemented bipolar hemiarthroplasty.

Material and Methods

Study design: Prospective study

Study population: All patients having fracture neck femur admitted in tertiary care Centre.

Study period: 2 years

Sample size: 30 cases with fracture neck femur treated with cemented bipolar hemiarthroplasty.

Data collection

After obtaining approval from Ethical Committee and informed consent form from patients, prior to surgery, each patient had a thorough medical history review and physical examination. Skin traction was applied to all patients. Medical issues that were related were treated. Hypertensives' blood pressure was regulated, and diabetics who were taking oral hypoglycemic medications were switched to insulin. Deep breathing exercises before to surgery were started on the first day of admission. Every effort was made to schedule the patients' surgeries as soon as possible. Prior to surgery, patients were maintained nil by mouth for six hours. All patients received pre-anesthetic drugs and an antibiotic protocol, which calls for the administration of a cephalosporin 30 minutes prior to surgery and two further doses every eight hours following it. A few patients had general anaesthesia while the majority of patients underwent surgery while under spinal or combination spinal epidural anaesthesia. Either the modified Hardinge's lateral approach or Moore's posterior approach was used to operate on each patient. There was a cemented bipolar hemireplacement arthroplasty. With the use of an abduction pillow, patients were kept in the ward after surgery with their limbs wide abducted (according to Moore's technique). Extreme flexion, internal rotation, and adduction were avoided. Starting on the first day, static quadriceps and gluteal exercises were performed. Patients may sit upright starting on day two. Within a week, ambulation with crutches and increasing weight bearing began. The sutures were removed on the 12th post-operative day.

Under the surgeon's guidance, strengthening exercises involving active knee flexion and extension as well as hip abduction were performed. The major goals of this treatment were to improve quadriceps strength and hip and knee joint range of motion. All patients were told not to squat or sit cross-legged. At the sixth week, three months, and finally six months, all patients were checked in on. Radiographs of the afflicted hip were taken, and a minimum follow-up of six months was noted, along with the modified Harris Hip Score.

Statistical analysis

IBM SPSS Version 21 was used for descriptive statistics and to calculate paired ‘t’ test. Microsoft Excelbook 2019 was used to prepare tables and graphs. P value < 0.05 was set for significant

Observation and Results

Table 1: Age

Age (in years)	No of cases	Percentage (%)
51 – 60	3	10.00
61 – 70	8	26.67
71 – 80	16	53.33
> 80	3	10.00
Total	30	100.00
Mean ± S.D	69.83±6.39	

Table 2: Gender

Gender	No of cases	Percentage (%)
Male	9	30.00
Female	21	70.00
Total	30	100.00

Table 3

Comorbidities	No of cases	Percentage (%)
Diabetes mellitus	4	13.33
Hypertension	7	23.33
Diabetes mellitus + Hypertension	2	6.67
No any	17	56.67
Total	30	100.00

Table 4: Harris Hip score

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pre-op	30	61.00	71.00	66.2000	2.48305
At_6weeks	30	65.00	75.00	70.7667	2.23889
At_3month	30	72.00	78.00	75.7333	2.16450
At_6months	30	78.00	84.00	81.7333	2.16450
Valid N (list wise)	30				

Table 5

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Preop	66.2000	30	2.48305	.45334
	At_6months	81.7333	30	2.16450	.39518

Summary and Conclusion

Considering the complication rates, elderly patients with fractured femur necks who underwent cemented bipolar hemiarthroplasty reported good outcomes in terms of range of motion, pain-free movements, return to daily activities, and independent activity.

Cemented bipolar hemiarthroplasty is a useful alternative in developing nations like India where the cost of the procedure, the availability of implants, and the need for range of motion are also taken into account. As it aids in early mobilisation, cemented bipolar hemiarthroplasty is a preferable alternative for treating proximal femur fractures in elderly individuals with osteoporotic bones.

As a result, problems from hip fractures in this age range can be avoided.

In osteoporotic proximal femoral fractures, elderly patients treated with cemented bipolar hemiarthroplasty have improved functional outcomes.

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