International Journal Dental and Medical Sciences Research
Volume 3, Issue 1, Jan-Feb 2021 pp 185-188 www.ijdmsrjournal.com ISSN: 2582-6018

Study of Functional Outcome of Fracture Neck Femur Treated With Bipolar Hemiartroplasty in Patients above 60 Years of Age

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Date of Submission: 25-12-2020 Date of Acceptance: 03-01-2021

ABSTRACT:-Background: The purpose of this study is to analyze 20 cases of bipolar hip arthroplasty done for fracture neck of femur from May 2019 to December 2020 at PATNA MEDICAL COLLEGE AND HOSPITAL,PATNA. A conventional Austin Moore[(1)] and Thompson device has been routinely done, however in long term follow-up, unsatisfactory results remained high due to femoral stem loosening, acetabular erosion, intrusion of prosthesis into the pelvis and difficulties with total hip revisions. These factors led to the development of bipolar prosthesis.
Methods: 20 patients were operated by bipolar hemiarthraoplasty for fracture neck of femur. All the patients had displaced fracture neck of femur and were in the elderly age group.
Results: 20% of the patients had excellent results and 75% had good results 5% had poor after 1 yr follow up using Harris hip score
Conclusions: For elderly patients with fracture neck of femur bipolar hemiarthroplasty gives good functional outcome, except for some difficulties in routine daily activities like sitting cross legged and squatting.
Keywords: Bipolar, Hemiarthoplasty , Fracture neck of femur, Funtional outcome, Harris hip score

I. INTRODUCTION;

In recent years the incidence of fracture neck of femur is increasing in the elderly and is the commonest injury causing morbidity and mortality in patients of geriatric age group [2]. The femoral neck is the most common location for a hip fracture. Fractures in this area are categorized based on the location of the fracture along the femoral neck, Fracture neck of femur is commonly seen in old people but in India quite a good number of patients are young adults below the age of 50. Fractures of neck of the femur have always presented great challenges to orthopedic surgeon .They are also associated with a lot of co-morbid conditions like hypertension, cardiac problems, diabetes and dementia. This combined with prolonged immobilization due to fractures leads to increased morbidity and mortality. Hence early mobilization after surgery is necessary in intracapsular neck fractures. Fracture treatment should be based on the patient's age, walking ability, comorbidities and life expectancy .Internal fixation (IF) or different types of hip arthroplasties are the available treatment modalities. Undisplaced intracapsular hip fracture is almost invariably treated with internal fixation. Most of the fractures are displaced and occur predominantly in elderly female patients. There are two different types of hemiarthroplasty : unipolar and bipolar [(3)]. The theoretical advantage of the bipolar HA is a reduction of acetabular wear due to the dual-bearing system. Bones are osteoporotic in elderly patient, Hemiarthroplasty is the most common treatmet. Bipolar prosthesis for displaced fractures of the femoral neck in the elderly and is associated with better functional outcome. Hip hemiarthoplasties are commonly performed for displaced femoral neck fractures. With increasing life expectancy worldwide, the number of elderly individuals is increasing, and it is estimated that the incidence of hip fracture will rise.

II. MATERIALS AND METHODS

A prospective study was conducted in the Department of Orthopaedics PMCH PATNA, with a minimum follow up of 12 months.

The Inclusion Criteria were-
1. Patients having intra-capsular fracture of neck of femur.
2. Adult patients aged more than 60 years both male and female.
3. Patients medically fit for surgery.
4. Patients who were ambulatory before fracture.

Exclusion Criteria were
1. Patients below 60 years of age.
2. Pathological fracture of the neck of femur.
3. Patients not willing for surgery

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Surgery:-

. All patients were evaluated pre-operatively by a detailed history and clinical examination. Preanaesthetic check up done, Patients were kept nil by mouth for six hours prior to surgery. Pre-anesthetic medications and antibiotic protocol (in which a cephalosporin was given 30 minutes before surgery and then 12th hourly post-operatively till 4 days) was given to all patients. All patients were operated under Epidural or general anaesthesia. All the patients were operated using Moore's posterior approach [(4)] and Uncemented bipolar hemiarthroplasty was done Post-operatively, patients were kept with limbs in wide abduction with help of abduction pillow. Adduction, internal rotation and extreme flexion were avoided in view of dislocation. Static quadriceps and gluteal exercises commenced from the first day. From the second day, patients were allowed to sit up. Partial weight bearing walker walking was started on 3rd post-operative day and progressive weight bearing encouraged. Suture removal was done on 14th post-operative day. Strengthening exercises consisting of abduction of hip joint and active flexion and extension of knee joint was done under supervision of the physiotherapist [(5,6)] All patients were advised not to sit cross-legged or squat. All patients were followed up at 6 weeks, 3 months and then at 6 months. Minimum follow up was of 6 months

III. RESULT:-

Table 1: Age Incidence

Age of pataients	Total
61-70	12(60%)
71-80	8(40%)

In present study, out of 20 cases 12 cases (60%) were in the age group of 61-70 years and 8 cases (40%) were in the age group of 71-80 years

Table2: Gender distibution

Sex	Total
Male	7(35%)
Female	13(65%)

Out of 20 cases of 7 cases (35%) were males and 13 cases (65%) were females.

Table 3 complication

Complication	Total
Surgical site infection	1(5%)
Implant lossening	2(10%)
Limb Length discrepancy	1(5%)
Nil	16(80%)

Out of 20 cases 1 case (5%) surgical site infection, 2 case(10%) implant loosening, 1 case(5%) limb length discrepancy, 16 case (80%) no any complication

Table 4 Overall result by use of harris hip score

Grade	No of patients	percentage
Excellent(90-100)	4	20
Good(80-90)	15	75
Fair (70-80)	0	0
Poor(below 70)	1	5

Out of 20 cases (20%) had excellent results and 15 cases (75%) had good results,1 case(5%) had poor result

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PRE OP X RAY PELVIS

POST –OP X- RAY PELVIS

The operative time ranged from 60 to 90 minutes . intra operative blood loss ranged from 300 to 550ml and in all patients haemostasis was achieved and no drain was kept. Post operatively only 4 patients required blood transfusion. Mean duration of hospital stay was (10–14 days). We had no perioperative mortality or serious morbidity. Two patients had lengthening (~1.9 cm). The remaining 18 patients were discharged on toe-touch-weight-bearing walking with walker support. All of these patients achieved preinjury ambulatory status at 4 months. We had one case of superficial skin infection which subsided after multiple wound wash and appropriate antibiotics as per culture and antibiotic sensitivity report. no patient had any dislocation.

IV. DISCUSSION:-

20 Bipolar hip arthroplasties were done for fracture neck of femur over a period from May 2019 to December 2020 in the department of orthopedics PMCH Patna, were taken for the study to evaluate the

functional outcome using the Harris hip score7.The Harris Hip Scale (HHS) was developed for the assessment of the results of hip surgery, and is intended to evaluate various hip disabilities and methods of treatment in an adult population. There are ten items covering four domains. The domains are pain, function, absence of deformity, and range of motion .The HHS is a measure of dysfunction so the higher the score, the better the outcome for the individual. Results can be recorded and calculated online. The maximum score possible is 100. Results can be interpreted with the following: <70 = poor result; 70–80 = fair, 80–90 = good, and 90–100 = excellent [9,10] . Fracture neck of femur one of the most common factors in the elderly population following a trivial trauma. Hemiarthroplasty involves replacing the femoral head with a prosthesis while retaining the natural acetabulum and the acetabulum cartilage. The aim of hemiarthroplasty for fracture neck of femur has been the early rehabilitation of patients with various comorbidities. The age of cases with femoral neck fracture in the study was ranging from 60 years to 80 years, Fractures of the femoral neck are common in the older population due to poor bone stock and osteoporosis[8] . The gender distribution of the cases was 13 females and 7 males amounting to 65% and 35% respectively. Out of 20 case 1 case develop surgical site infection, 1 case had limb length discrepency, 2 develop implant loosening, 16 patient no any complication. At the final follow-up of 6 months the 15 patients rated good outcome, 4 patient rated excellent and one poor, according to the harris hip score on the final follow up.

V. CONCLUSION

In our study, all the patients had satisfactory functional outcome with majority having excellent to good outcome and all the patients resumed to their normal daily activity. To conclude bipolar prosthesis is a good and safe option in treating fracture neck of femur in the elderly (above 60 years) with good recovery and pain free function in-spite of having several co-morbidities and minimal complications.

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