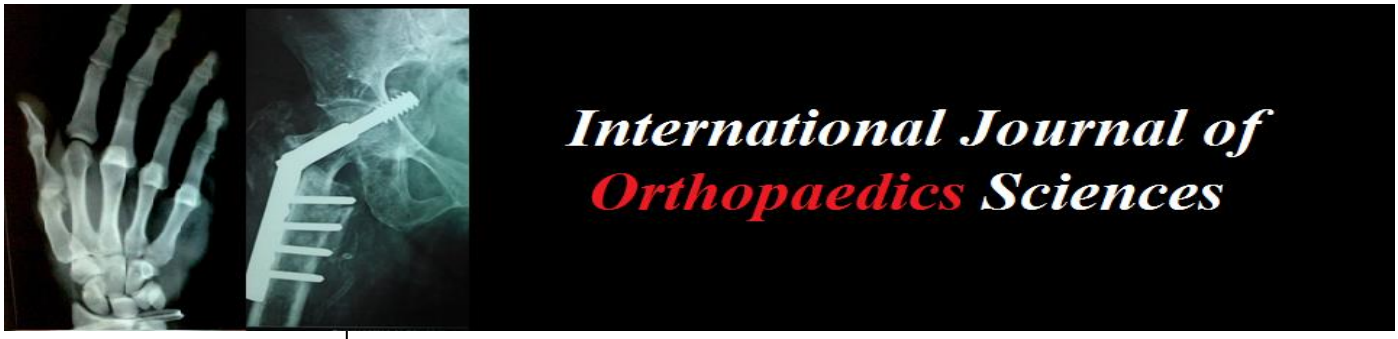

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2020; 6(2): 319-325

www.orthopaper.com
Received: 27-01-2020
Accepted: 29-02-2020

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A clinical study of Management of intracapsular fracture neck of the femur in elderly with Bipolar Hemiarthroplasty

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DOI: https://doi.org/10.22271/ortho.2020.v6.i2e.2060

Abstract
Aim & Objectives: The aim of the present investigation is to evaluate the results of bipolar hemiarthroplasty with respect to pain, range of motion, clinical functional outcome and complications in cases of Intra capsular fracture neck of the femur treated with bipolar hemiarthroplasty.
Methodology: It is prospective observational study consists of 22 adult patients of Intracapsular fracture neck of the femur, who are treated with Bipolar hemiarthroplasty in NRI Medical College & general hospital, Guntur from 01-07-2017 to 31-06-2018.
Results: This series consisted of 22 cases of intracapsular fracture neck femur treated surgically by Bipolar hemiarthroplasty. In the present study, out of the 22 patients 14 were females accounting to 63.64% and 8 were males making up the remaining 36.36%. Females are more affected than males. Age of all the patients in this study, ranged above 60 years. Majority of the patients were in the age group between 60 to 70 years. In this study group, left side (54.55%) was more commonly involved than the right (45.45%). The average interval between admission to the hospital and surgery was 4.5 days with a range of 2 to 15 days. The average duration of hospital stay was 15 days with a range of 7 to 30 days. The commonest mode of injury occurred due to fall on a slippery floor (86.36%) and Road Traffic Accident (13.64%). Harris hip score was used to evaluate the functional results. Using this rating scale, the functional outcome was measured. There were Seven patients (31.82%) with excellent results, Twelve patients (54.55%) with good results, Two patients (9.09%) with fair results and One patient (4.55%) with poor outcome.
Conclusion: We conclude that bipolar hemiarthroplasty produces good functional outcomes with minimal complications for displaced intracapsular femoral neck fractures and has several advantages.

Keywords: Hemiarthoplasty, Neck, Bipolar, Harris hip Score, Femur

1. Introduction
Femoral neck fractures, recognized since the time of Hippocrates, still remains a vexing clinical problem for orthopaedic surgeons. The fracture neck of femur is one of the commonest fractures in elderly. With life expectancy increasing with each decade, our society is becoming increasingly an active geriatric society, with significant number of hospitalized and nursing home patients with femoral neck fractures and their sequelae. It has always presented great challenges to orthopedic surgeons and even today it remains an unsolved fracture as far as treatment is concerned [1].
Intracapsular femoral neck fractures account for about 50% of all hip fractures. The lifetime risk of sustaining a hip fracture is high and lies within the range of 40% to 50% in women and 13% to 22% in men. Life expectancy is increasing worldwide, and these demographic changes can be expected to cause the number of hip fractures occurring worldwide to increase from 1.66 million in 1990 to 6.26 million in 2050 [2].
Various methods of treatment have been employed since ages. The prolonged immobilization in elderly, will further lead to decubitus problems and associated complications, and hence surgery was resorted to achieve early ambulation. It is known fact that the hip is a weight bearing joint performing many functions. A successful surgery at the joint should provide painless, stable hip with wide range of movements.
Several authors have considered replacement of the femoral head as an alternative due to the

frequent development of nonunion, failure of osteosynthesis and avascular necrosis of the femoral head [3, 4].

Prosthetic replacement of femoral head with hemiarthroplasty has been the gold standard now in the management of intracapsular fracture neck of femur in geriatric patients. The advantages being early weight bearing to return to activity and help avoid complications of recumbency and inactivity, and avoiding complications of the fracture healing like nonunion and osteonecrosis.

Selection of the type of prosthesis is very important in hemiarthroplasty as different types are available. Although the fixed head endoprosthesis like Austin-Moore Prosthesis has produced excellent results [5, 6], persistent pain and protrusio acetabuli have been associated with this device and led many surgeons to choose a bipolar system. This prosthesis is very useful and results are encouraging [7].

Since the last two decades, bipolar replacements of the femoral head have gained popularity for treating femoral neck fractures. These devices incorporated the principles of low-friction arthroplasty including fixation with polymethyl methacrylate. In this, the majority of motion is supposed to occur between the small inner metallic head and the ultrahigh molecular weight polyethylene socket. The polyethylene socket is bonded to an outer stainless steel shell and this shell articulates with the acetabulum. The lessening of motion at the outer metallic shell-acetabular interface reduces erosion and penetration of the acetabulum.

Aims and objectives of the study

To evaluate the results of bipolar hemiarthroplasty with respect to pain, range of motion, clinical functional outcome and complications in cases of Intra capsular fracture neck of the femur treated with bipolar hemiarthroplasty.

The subjects were patients admitted to NRI Medical College & General Hospital, Guntur between 01-07-2017 to 31-06-2018.

Materils and Methods

The present study consists of 22 adult patients of Intracapsular fracture neck of the femur, who are treated with Bipolar hemiarthroplasty in NRI Medical College & general hospital, Guntur from 01-07-2017 to 31-06-2018.

The patients were followed up at an interval of 6 weeks, 3 months and 6 months and their functional outcome assessed using Harris Hip score.

Inclusion Criteria

1. Patients with Intracapsular fracture neck of the femur with age>60 years.
2. Patients who were able to walk and live independently prior to the fracture.
3. A hip with no or minimal osteoarthritic changes

Exclusion Criteria

1. Age of the patient <60 years.
2. Neurological disorders that may significantly influence walking ability.
3. Pathological fractures secondary to malignant disease.
4. Concomitant other fractures.
5. Acute infections of the hip joint or anywhere systemically.
6. Very high surgical risk

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. The follow up summary was recorded in the follow up chart of the proforma.

Preoperative Management

Patients were admitted to the ward. Detailed history was taken with particular emphasize on mode of injury and associated medical illness. In depth, clinical assessment was carried out in each case.

In all patients preoperatively Buck's traction with appropriate weight was applied, to the fractured lower limb, with the aim of relieving pain, preventing shortening and to reduce unnecessary movements of the injured limb. Oral or parental NSAIDs were given to relieve the pain.

Anteroposterior radiographs of the affected hip joint and pelvis with bone hips were taken for all the patients, keeping the fractured limb in 15^0 internal rotation to bring the neck parallel to X-ray film.

Routine blood investigations, blood grouping and typing, urine routine, RBS, serum urea, creatinine, HBsAg, HIV, chest x-ray, ECG, were done in all cases. Necessary and adequate treatment was given for those associated with medical problems such as anemia, diabetes, hypertension, COPD, asthma, etc. were evaluated and treated before taking them to surgery.

Certain therapeutic exercises were taught preoperatively to the patients, which had to be continued postoperatively, such as deep breathing exercises, static quadriceps exercises, ankle movements.

Patients as well as the attenders were explained about the surgery and its risk factors and informed written consent for the surgery was taken for all patients. Deep venous thrombosis prophylaxis with low molecular weight heparin was given an all at risk patients. Intravenous antibiotics were given an hour before the surgery. The limb was prepared from nipple to knee including perineum and back.

Surgical Procedure

All surgeries were performed on an elective basis using standard aseptic precautions. Surgery was performed under spinal or general anaesthesia.

Position of patient: Lateral position

Approach: Posterior approach / Lateral approach

Technique

After anesthesia, patient in lateral position, parts scrubbed, painted & draped. With either lateral (Hardinge) or Posterior (Southern-Moore) approach, incision made, tissues dissected, joint capsule incised and femoral head extracted with the help of cork screw.

With an appropriate rasp, medullary canal is rasped in Valgus and 10-15 degrees of anteversion relative to the plane in which the knee joint axis lies. Then the appropriate size of prosthesis was seated in the prepared medullary canal with the 10-15 degrees of anteversion and Valgus position. The prosthesis was impacted with gentle blows in to the medullary canal and finally, the prosthesis was reduced in to the acetabulum.

The hip was tested for full range of movements and stability intraoperatively. The wound was closed meticulously in layers over a suction drain maintaining haemostasis throughout the procedure and dressing was applied. We noted the duration of surgery from incision to closure, blood loss, whether prosthesis can be easily reduced and difficulty in reduction. Blood loss was assessed and blood transfusion

carried out if required.
A pillow was kept in between both the legs so that the leg was in abduction. Foot end of the bed was elevated and regular hourly Temperature, Pulse, respiratory rate, blood pressure charts were maintained for initial 24 hours. Whenever necessary, postoperative blood transfusion was given.

Antibiotics: In the form of intravenous route twice a day given for the first 48 hours and later shifted to oral antibiotics.
A post op check X-ray was taken and the Valgus seating with 10-15 degree of anteversion was confirmed. Any limb length discrepancy was noted. Knee flexion, isotonic quadriceps exercises were started from 1st or 2nd post op day and patients were mobilized with walker with partial weight bearing as tolerated and if patients are comfortably walking, we discharge them on 4th or 5th post-operative day and ask them to come for suture removal on 10th post-operative day, provided wound is healthy otherwise we keep the patients till suture removal and then discharge**.**
The patient was advised to use a straight high chair with arms to facilitate getting out of the chair and avoid a sofa. The patient was advised not to sit cross-legged or squat on the floor or squat on Indian style of toilet and patient was advised not to adduct or flex the hip excessively or involve in activities that place heavy load or stresses on the hip joint. The patient was advised to carry out the isotonic and isometric exercises to strengthen the muscles around the hip.

Follow Up
At the time of discharge the patients were asked to come for follow up after 6 weeks and for further follow up at 3 months and 6 months.
At follow up, detailed clinical examination was done systematically. Patients were evaluated according to Harris hip scoring system for pain, limp, the use of support, walking distance, ability to climb stairs, ability to put on shoes and socks (in our study for some patients ability to cut toenail was enquired) sitting on chair, ability to enter public transportation, deformities, leg length discrepancy and movements. All the details were recorded in the follow up chart. The radiograph of the operated hip was taken at regular intervals, at each follow up.

Results

Table 1: Age incidence

Age in years	No. of cases	Percentage
60-65	10	45.45
66-70	9	40.91
>70	3	13.64
TOTAL	22	100

The average age of patients in our series range from 60 years to 75 years.

Table 2: Sex incidence

	No of cases	Percentage
Female	14	63.64
Male	8	36.36
Total	22	100

Table 3: Side incidence

	No. of cases	Percentage
Left	12	54.55
Right	10	45.45
Total	22	100

Table 4: Type of Fracture (GARDEN'S CLASSIFICATION)

Type of Fracture	No. of cases	Percentage
Type III	8	36.36
Type IV	14	63.64
Total	22	100

Table 5: Mechanism of injury

	No of Patients	Percentage
Fall due to slip	19	86.36
RTA	3	13.64
Total	22	100

Table 6: Interval between Injury and Admission

Duration	No of Patients	Percentage
< 7 days	14	63.64
7 – 30 days	5	22.73
> 30 days	3	13.64

Table 7: Associated diseases

Disease	No. of Pts	Percentage
Diabetes	4	18.18
Hypertension	6	27.27
Ischemic Heart Disease	1	4.55

Table 8: Prosthesis Sizes

Head Size	No. of Pts	Percentage
39	1	4.55
41	3	13.64
43	6	27.27
45	7	31.82
47	3	13.64
49	2	9.09

Intraoperative complications
We had intra operative complications in five patients, in two increasing duration of surgery and in another three increased amount of blood loss.
Duration of surgery was also noted as one of the factor which was considered in our study. The duration of surgery ranged from 60 min to 120 min.
The amount of blood loss is also an important factor because we operated many patients 15 (68.18%) whose hemoglobin was less than 10 gm %. So pre-operative blood transfusions as well as intra-operative and post operative blood transfusions were done .The blood loss was noted from 250 ml to 500 ml with average of 300 ml.
Minimal reaming was done in all cases to prevent fat embolism and proper placement of the femoral stem in the proximal femoral shaft. In all cases in the intra-operative period close monitoring of the blood pressure and SPO2 was done by the anaesthetist.

Postoperative complications
There was superficial infection in two patients (9.09%). No patient had deep infection, dislocation of prosthesis or loosening of the stem.
Limb length discrepancy seen in 2 (9.09%) patients, of which lengthening was noted in both patients. However, the limp was corrected with a shoe raise for the shorter limb.
No patient developed Heterotopic Ossification, Periprosthetic fractures. In our study we did not find any case of DVT/PE and there were no mortalities.

Table 9: Complications

Complication	No. of patients	Percentage
Superficial Infection	2	9.09
Deep Infection	0	0
Periprosthetic Fracture	0	0
Limb Length Discrepancy	2	9.09
Heterotopic Ossification	0	0

Follow up

The activity level was checked at regular interval at 6 weeks, 3 months, and 6 months. Most patients were able to perform house hold activities and were able to walk outside and to their work.

The ambulation was started on 3rd-10th post-operative day. All the patients were able to walk comfortably with partial weight bearing walking with walker except few. But after 6 weeks, many patients walked comfortably without walker just holding the walking stick. Harris Hip Score was evaluated at 6 weeks, 3 months, and 6 months.

We assessed all patients during follow up visits with check X-ray and follow up X-rays for positioning of the prosthesis, any radiological signs of loosening. Acetabulum was normal till the last follow up in all cases; no acetabular erosion was noted in our study.

Range of movements was calculated in all patients. All the patients were able to do more than 90 degree flexion, more than 30 degree of abduction at regular follow up. We did not allow patients to cross leg sitting and squatting in our follow up. At the follow up we noted that few patients were squatting against our advice and used to sit on the floor comfortably. Others used to sit on chair and they used western toilet.

The pre fall activity level was achieved by 10 (45.45% %) patients by the end of 3 months and 20 patients (90.91 %) by the end of 6 months. Only 2 patients (9.09 %) unable to get their pre fall level.

Table 10: Outcomes

Harris Hip Score	Result	No. of Cases	Percentage
> 90	Excellent	7	31.82
80-90	Good	12	54.55
70-80	Fair	2	9.09
< 70	Poor	1	4.54
	Total	22	100

Discussion

Management of fracture of femoral neck still remains major and difficult undertaking for an orthopaedic surgeon. The pendulum is swinging between reduction and internal fixation with various supplementary methods as osteosynthesis to total hip replacement. It is now the general feeling that reduction and internal fixation should be reserved for the younger patients in whom if needed revision surgery may be done at a later date. Primary prosthetic replacement should be considered in older patients who are active and need early mobilization.

The concept of dual bearing surfaces offers considerable advantage, it results in sharing of motion at the two surfaces and hence reduction of net wear at either surface, thus reducing erosion at the acetabular-joint interface. In addition, the total range of motion of joint is increased.

In India, the technically demanding procedure of total hip replacement lacks universal application and the hemireplacement procedure needs to have continued application to fill the lacuna produced by deficient resources and finances.

In this context we undertook the present study to evaluate the immediate and early results of hemiarthroplasty in fracture neck of the femur using bipolar prosthesis keeping in view the living condition of an average Indian.

Age Distribution: The average age of our patients was 65.3 years. Majority of the patients were between 60-70 years. The physiological age of our patients is more than the chronological age and hence these patients are considered old for all practical purposes. Similar age distribution is reported by other authors.

Table 11: Studies Showing Age Distribution

Study	Age distribution
Saxena & Saraf[8](1978)	66 years
Mukherjee &. Puri[9] (1986)	65 years
Nottage and Mc Master (1990)[10]	65 years
Garrahan and Madden (1990)[11]	66 years

Sex distribution: In our series the intracapsular fracture of femoral neck were found to be more common in females. The elderly females are more prone to fracture neck of femur due to osteoporosis (Choudhari & Mohite[12]1987). Female preponderance has been reported in several series.

Table 12: Studies showing female preponderance

Study	Percentage
Moore [5] (1957)	62.5%
Sikroski & Barrington [13] (1981)	66.7%

Male preponderance is reported in few series: D'Acry and Devas [14] (1976): 91.4%; Mukherjee and Puri [9] (1986): 58.3%; Bavadekar and Manelkar [15] (1987): 60.9%. In our series 63.64% of the patients were females.

Side of Fracture: Left side is more affected than right in our series.

Similar results were observed in several studies. Boyd and Salvatore [16] (1964) reported 55% fractures on left side. D'Acry and Devas [14] (1976) similarly found 55.4% fracture in left hip of their patients. In our series 54.55% of patients had left side fractures.

Type of Fracture: All the fractures in our series belonged to displaced fractures of Garden Type III and IV. Depending on the anteroposterior radiographs available, we could group 8 patients (36.36%) into type III and 14 patients (63.64%) into Garden type IV.

G.S. Kulkarni [17] (1987) had grouped type III and type IV into one group of 'displaced fractures' and reported it in 82.5% of his patients. Mukherjee &. Puri [9] (1986) had 85% patients of Garden type III and IV fractures.

Nature of Injury: 86.36% of our patients had trivial trauma and 13.64% of the cases of fracture were due to severe trauma like road traffic accidents.

This is in accordance with majority of the series reported - [Gyepes [18] (1962), Solomon (1968), Evarts [19] (1973), Seth [20] (1987) etc., several other authorities believe that the intracapsular fracture are stress fractures through pathological bone secondary to osteoporosis or osteomalacia.

Associated Medical Problems: The common problems in our series were anaemia, hypertension, diabetes mellitus,

chronic bronchitis and bronchial asthma. Fifty percent of our patients had one or more of the problem. Hinchey and Day [21] (1964) reported similar problems in 84.6% of their patients, whereas rest also had slight anaemia and mild hypertension with good health.

Anaemia was a major problem which is not commonly found in western literature. Most of the patients were anemic and received pre-op, intra-op, and postoperative blood transfusions as required. Ischaemic heart diseases are common in western series, which are not found so common in our series. The patients with ischemic heart disorder most of the time do not agree for anesthetic risk. The mild ischemia in hypertensive old patients was not grouped separately. Hypertension, diabetes mellitus were commonly detected after the patient got admitted with fracture neck of femur. There is another important difference, the patients with nervous system disorder and mental problems are not found in our series whereas they were common in western series. This is probably because the already handicapped patients are either not brought to the hospital when they fracture their femoral neck or are restricted from activities hence incidences of fracture are less.

Type of Prosthesis: We have used the Uncemented Bipolar Hemiarthroplasty technique in all of our cases. Some studies showed better clinical ratings with uncemented bipolar than cemented bipolar [22]. The peri-operative variables like duration of surgery, amount of blood loss, length of hospital stay and postoperative complications (DVT, chest infection, mortality) were found to be less in the uncemented prosthesis group.

The size of prosthesis commonly used was 41 mm & 43 mm for female and 45 mm & 47 mm for male cases. The average duration of surgery was 75 min. The average blood loss in surgery was 300 ml.

Other series show that cemented hemiarthroplasty is better than uncemented. [23, 24] These studies found that a cemented hemiarthroplasty led to less pain in the hip, improved return of mobility and a reduced hospital stay compared to an uncemented prosthesis.

Hospital Stay: In our series hospital stay ranges from 7 days to 30 days with a mean average of 15 days. We did not operate any patient as an emergency and all were thoroughly prepared before surgery. Fifty percent of our patients who had various medical problems could not be taken to surgery on the operation day available in the first week of their admission. Seventy-five percent of patients had prosthesis by first week of their admission to the hospital.

Those patients who had no operative or post-operative complications were discharged once they were able to walk with support. About 70%' of our patients could go home by second week. About 80% could go home within 3 weeks.

Patients who developed complications such as infection, bedsore etc., in the post-operative period had to stay longer in the hospital. Early ambulation and comparatively less hospital stay following hemiarthroplasty has also been reported in other series. This is an advantageous factor in relation to economy of hospital beds and favors financial condition of the patients.

We also found that significant number of our patients who had come from rural areas could not come to the hospital soon after the injury. 22.73% of the patients were admitted 7 days after the fracture, where as 13.64% of the patients sought medical assistance after 1 month. Poverty, ignorance and difficulty in transportation of the patients to the hospital were the main explanations given for this delay.

Complications: The complications following the hemiarthroplasty for fracture neck of femur is reported in varying incidences. Moore (1957) [5] reported 16.6% mortality. Temporary mental confusion was the commonest complication in the immediate post-operative period of Hinchey and Day (1964) [21] series. Salvatti *et al* (1973) [25] reported 14.3% mortality, 8.3% superficial infection in their patients. C.M Robinson *et al* [26] (1994) reported 11% mortality within one year, 5% infection, 2% deep vein thrombosis and 3% dislocation in their series. We had no operative deaths in our series.

Infection: In our series 2 patients (9.09%) had superficial wound infection. One patients was diabetic. They developed signs of infection in the first week of operation. They were treated with proper antibiotics and dressings. These infections were found when the patients were still in the hospital and this resulted in prolongation of their hospital stay.

The organisms isolated in the above cases were: Staphylococcus aureus. Superficial infection could be successfully treated with antibiotics, local measures and drainage. Deep infections most of the time need removal of the prosthesis. Early deep infections may present as an acute, potentially fatal clinical course with septic shock to mild low grade pain in the thigh or groin (Salvatti *et al* (1974) [27], Moore (1940), and Wood *et al* [28] (1980) have reported extremely high mortality following infection of the prosthesis.

We had no mortality in our series.

Dislocation of the Prosthesis: Dislocation of the Bipolar prosthesis is a rare phenomenon. It has been reported in literature ranging from 1.1% at one year followup to 5% at 20 years. [29] However, in our series, no dislocation has occurred at final followup.

Salvatti *et al*. [27] (1974) believed that excessive postoperative flexion or rotation with hip adducted is the main cause for dislocation of the prosthesis and they also observed that dislocation was commonly caused while shifting the patients from the operation theatre to the ward.

In 1998, John E. Kenzora *et al*. [30] noted that all 6 dislocation in their series followed after posterior approach. Dislocation is a well-known complication of posterior approach. In our series, we had done 15 cases through posterior approach, but there was no dislocation. The dislocation rate following THR for subcapital fracture is probably of the order of 5-10% in this age group. [31]

Periprosthetic Fractures: No patient in our series sustained Periprosthetic fracture. Hinchey and Day [21] (1964) emphasize that all fractures occur when the surgeon attempts to reduce the prosthesis.

Painful prosthesis: We observed that 16 patients (72.73%) in our series had no pain. Out of 6 patients who had slight pain, one patient had superficial infection and rest of the patients had no post operative complication. Pain following hemiarthroplasty is a major concern. Approximately 20% of unipolar prostheses implanted in the mobile independent elderly need revising because of pain. [32] Up to 50% of these revisions are required within 3 years. Hinchey and Day [21] in their series of 294 patients found pain following hemiarthroplasty in 22 patients in the early post operative

period. They could not find any definitive cause in them. They suspected poor muscle control as the probable cause of pain. The pain was mild to moderate and required treatment. Intraarticular steroids gave relief in one patient. Revision arthroplasty was also reported in one patient. Active exercises of gluteal and quadriceps muscles relieved in 7 patients after a period of 8 to 20 months. Our 6 patients required treatment for pain. Four of them are partially relieved by analgesics. Two patients with slight pain were regularly on analgesics.

Limping and use of cane: Seven of our patients have varying degree of limping. All of them had slight limp. Limping is a common consequence of hemiarthroplasty in adults. Though two of them had mild limb-length discrepancy that was corrected with shoe rise, the exact cause cannot be attributed to this. Alteration in the abductor mechanism due to excision of little more neck is the most probable cause Saraf and Saxena, (1978) [8]; Hinchey and Day (1964) [21]. All the patients were asked to use a cane on the sound side regularly. This decreases load on the prosthetic head. Once the patient got enough endurance, they were advised to discard the cane. 16% of Saraf and Saxena [8] (1978) reported 52.7% patients using cane regularly, 23.1% occasionally and 21.8% were not using it. Our patients are comparable to this.

Other complications: Polyethylene wear debris and metallosios causing failure of bipolar hemiarthroplasty were reported as isolated instances by Kim *et al* [33] and Kobayashi *et al* [34] respectively. In our study we did not find any case of Deep Vein thrombosis or Pulmonary Thromboembolism and there was no mortality.

Total Functional Results: Various criteria were used to assess the functional results following hemiarthroplasty. How best the patient could be returned to the pre-fracture state has been the main criteria. In India, our customs demand squatting and sitting cross legged without difficulty.

In our series, 7 (31.82%) patients had excellent results with Harris Hip Score more than 90, 12 (54.55%) patients had good results with 80 to 90 score, 2 (9.09%) had fair results with score 70 to 80 and 1 (4.55%) had poor results with score < 70.

The difference between excellent and good results is minimal and therefore they can be grouped together as satisfactory (good) results. The results are compared with the available western and Indian series where hemiarthroplasty was done for the treatment of fracture neck of femur in elderly patients.

The satisfactory results in our series were 86.37%. Our results are comparable with other series: Hinchey and Day [21]: 72.8%; Lanceford 81%; 80.3%; Salvatti *et al*: 57%; Saxena and Saraf [8]: 90.9%, Mukherjee [9]: 78%. Mean Harris Hip Score for Bateman's Bipolar prosthesis was 85 and for Unipolar hemiarthroplasty was 77 in other series [35] and in our series was 85.

Radiographic Results

In our series, at the end of final follow-up, there was no evidence of loosening, radiolucent zones, distal migration or subsidence of prosthesis

Conclusion

Hemiarthroplasty is a common procedure in the treatment of femoral neck fractures in elderly. Decision to perform hemiarthroplasty using either unipolar or bipolar prosthesis remains controversial with proponents on either side. Unipolar hemiarthroplasty has been shown to produce good results, though there is high incidence of erosion, protrusion and needs revision in future. The concept of dual bearing surfaces offers considerable advantage, it results in sharing of motion at the two surfaces and hence reduction of net wear at either surface, thus reducing erosion at the acetabular–joint interface. In addition, the total range of motion of joint is increased. From our relatively short-term prospective nonrandomized study, we conclude that bipolar hemiarthroplasty produces good functional outcomes with minimal complications for displaced intracapsular femoral neck fractures and has several advantages; these results are comparable to the other studies.

Acknowledgement

The author would like to thankful Dept of Orthopaedics, NRI Medical College & General Hospital for providing all the facilities to carry out this work.

Conflict of Interest

None

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