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**INTERNATIONAL JOURNAL OF  
ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/8376  
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/8376>



### RESEARCH ARTICLE

#### MANAGEMENT OF NEGLECTED FRACTURE NECK OF FEMUR WITH CEMENTED BIPOLAR HEMIARTHROPLASTY: A PROSPECTIVE OBSERVATIONAL STUDY.

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#### Manuscript Info

##### Manuscript History

Received: 10 November 2018  
 Final Accepted: 12 December 2018  
 Published: January 2019

##### Key words:-

Neglected, femoral neck femur fractures,  
 bipolar hemiarthroplasty.

#### Abstract

**Background:** In geriatric population femoral neck fractures is one of the most common injuries. Very little literature is available as far as treatment of neglected femoral neck fractures.

**Material and methods:** In this prospective observational study, 20 cases of neglected (3 to 8 months, mean 5.2 months) intracapsular fracture neck of femur in elderly patients with mean age of 72.8 years (range: 66-87 years) were treated by a single operating surgeon with cemented bipolar hemiarthroplasty. This study was conducted at the post graduate Dept. Of Orthopaedics, G.M.C. Jammu from November 2017 to October 2018. The results and follow-up were evaluated; functional results were analyzed by using modified Harris hip scoring system.

**Results:** Four patients had a Garden type III fracture radiologically, while 16 had a Garden type IV. In 75% of cases, the mode of injury was trivial trauma. We lost one patient to follow-up after 12 months; while two others died due to medical conditions (10-16 months post surgery). Seventeen patients were followed to final follow-up (average 14 months; range: 12-25 months). Some of the complications observed were one patient had superficial infection of the wound and two patients had limb length discrepancy (~1.9cm), following the procedure. There were 50% excellent results and 30% good results.

**Conclusions:** No patient was put on pre operative skeletal or skin traction. Cemented Bipolar hemiarthroplasty was found to be safe and gave satisfactory results in 80%.

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#### Introduction:-

A hip fracture represents an ominous landmark in any patient's personal health. Femoral neck fractures still remain a matter of worry for orthopaedic surgeons. In geriatric population femoral neck fractures is one of the most common injuries. Very little literature is available as far as treatment of neglected femoral neck fractures. The goal of treatment of these fractures is restoration of prefracture function without associated morbidity. Osteosynthesis in elderly patient has got more morbidity and re-operation rates. Introduction of single piece unipolar metal prosthesis

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in 1950's, to replace the femoral head offered an alternative form of treatment. The problems encountered were acetabular erosion and loosening of stem giving rise to pain. In spite of these, superiority of prosthetic replacement over internal fixation was well established. There is controversy at present whether to do hemiarthroplasty, bipolar or otherwise or primary THR in these cases.

One of the aims of this study is to see whether bipolar hemiarthroplasty meets desired end result. As the bipolar hemiarthroplasty being quicker leading to lesser morbidity and low rate of dislocation which is quite common after primary THR in fracture of neck femur. This led to reduced wear of acetabular surface and the prosthesis. The main aim to reduce immobilization and make patient walk early, with improved survival of implant is clearly met by this bipolar prosthesis.

### Materials and Methods:-

Between November 2017 and October 2018, a prospective hospital based study was done in which a single operating surgeon performed cemented bipolar hemiarthroplasty in 20 patients which included 12 males and 8 females at post graduate department of orthopaedics G.M.C. Jammu;. These patients, with a mean age of 72.8 years (range: 66-87 years), presented with neglected (3 to 8 months, mean 5.2 months) displaced intracapsular fracture neck of femur, Garden type III in 4 patients and Garden type IV in 16 patients (Figure 2). All but one of the patients had been ambulatory, either without support ( $n=17$ ) or with support (cane or walker) ( $n=3$ ), before the injury. Majority of patients 75% ( $n=15$ ) had sustained fracture following trivial falls at home and only 5 patients sustained injury due to RTA.

Most of the patients had multiple comorbidities. 14 patients were hypertensive (on irregular treatment), 3 had coexistent diabetes mellitus, 3 had coronary heart disease and 4 had hypothyroidism. 4 patients had one or more of the following: benign prostatic hypertrophy (BPH), Alzheimer disease, glaucoma, impaired vision, anaemia and COPD. 12 patients had developed bed sores of mostly grade 2( $n=5$ ) and grade 3( $n=7$ ) (Figure 1).

Figure 1

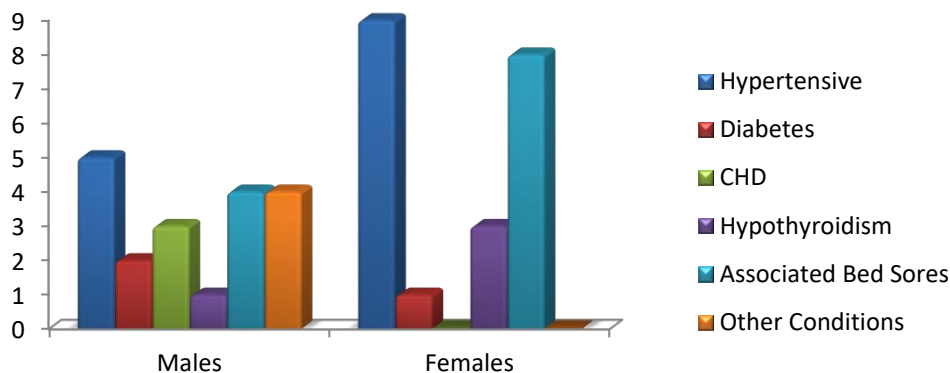
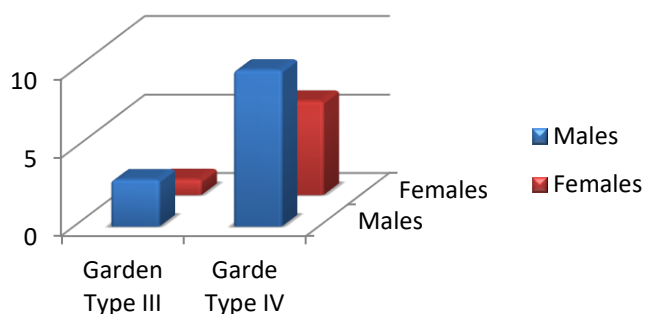


Figure 2



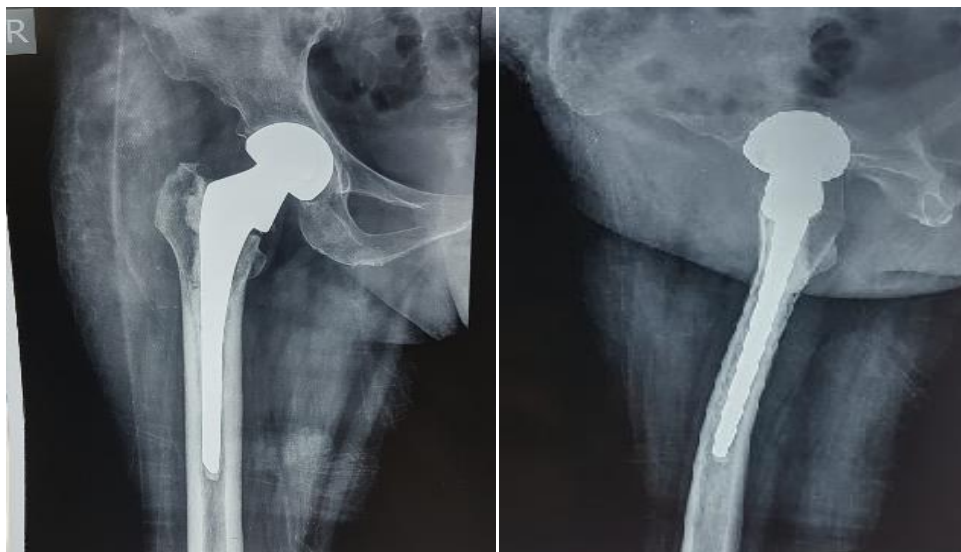
No preoperative skeletal traction was given. Surgery was done under spinal or epidural anaesthesia. We used the modified Harding lateral approach, during surgery a 360° capsular release was needed and cemented bipolar hemi-replacement was performed (size 39-53). Trail testing was done before cementing.

Preoperatively 1 gram of intra venous tranexamic acid was given along with prophylactic intravenous antibiotics 15 minutes to half an hour before skin incision. I.V. antibiotics were continued for 2 days in all patients. Post operative mobilization was started from next day including bed side sitting and then full weight bearing with walker within patients comfort. Dressing was changed after 72 hours and suture removal at 15 post operative day. Patients were followed up at 2weeks, 6 weeks, 3 months, 6 months and 12 months. Any post operative complication was noted.

### Results:-

The operative time ranged from 45 to 80 minutes (mean of 56 minutes). Average intra operative blood loss ranged from 300 to 550ml (mean of 390ml) 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 10.9 days (5–21 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.



In our study, the final Harris hip score as evaluated at 6 months follow-up averaged 87.2 with the maximum score being 100 and the minimum score being 55. Of 20 patients, 10 patients (50%) achieved excellent result, 6 patients (30%) achieved good result, 3 patients (15%) achieved fair result and one patient (5%) achieved poor result. At 1 year of minimum follow up overall, 80% of the patients achieved either an excellent or a good result. All were ambulatory and had painless hips; the mean Harris hip score was 85 (range: 65–96) (Table1). There was no incidence of stem subsidence, acetabular erosion, acetabular protrusion, or heterotrophic ossification in any of the patients during the study period. No patients among these needed revision or conversion to total hip replacement to date.

**Table 1:-**[Results at 6 and 12 month follow-up based on Harris Hip Score]

	RESULTS	Excellent	Good	Fair	poor
FOLLOW-UP					
6 Months		10	6	3	1
12 months		12	4	4	0

### Discussion:-

The main goal of treatment of fracture neck of femur in elderly patients is early mobilization. Not enough literature is available regarding neglected femur fractures.

Though it is well established by this time that mainstay of treatment of elderly patients with fracture neck of femur is replacement arthroplasty rather than osteosynthesis. The debate is only about the type prosthesis, whether to go for Unipolar, Bipolar, and Total hip replacement, Cemented or Uncemented.

In 1974, Bateman introduced an articulating bipolar prosthetic device in an attempt to deal with the prosthetic pain problem as well as to offer the potential for a facile conversion to a total hip arthroplasty. His concept was that bipolar prosthesis by virtue of its unique articulation with the acetabulum would function without eroding acetabular bone. Bipolar hemiarthroplasty is an effective treatment for fracture of femoral neck and that the rate of complications is acceptable compared with that of unipolar hemiarthroplasty.

In a study conducted to know the effectiveness of treatment with bipolar prosthesis in elderly patients with femoral neck fractures, there were no poor results and hence the authors concluded that the method of choice for femoral neck fractures in elderly patients is bipolar hemiarthroplasty. Bipolar prosthesis can be more appropriately used in patients who are community ambulators and whose likelihood of success with internal fixation is low.

In elderly patients early mobilization is the goal and hence cemented hemi-replacement arthroplasty is better choice of implant, because cemented prosthesis has got advantage of immediate weight bearing, less pain and as per literature there is a not much difference in terms of complications with cementing. Simultaneously there is not much difference between unipolar and bipolar replacement arthroplasty. Though in literature there are various reports of advantages of cementless hemi-replacement arthroplasty in elderly population like, less operative time, less blood loss etc. however it can be associated with less stable implant post operation, thigh pain and intra operative fractures.

### Conclusion:-

Finally, we conclude that neglected neck of femur fracture is commonly seen in a developing country like India and in elderly age group commonly in males associated with trivial fall accompanied by osteoporosis. Due to elderly age group, the patients have one or more comorbid conditions, so early mobilization is of utmost importance. As the fracture neck of femur in elderly is associated with a lot of complications including non union and avascular necrosis so bipolar hemiarthroplasty is a good procedure to achieve early mobilization and to prevent complications like bed sores. Thus, Cemented Bipolar hemiarthroplasty is found to be safe and gives good functional results. In the present study, twenty patients with neglected fracture neck of femur were surgically treated with cemented bipolar hemiarthroplasty. The clinical data was assessed, analysed, evaluated and the following conclusions were made:

1. All the patients had Fracture neck of femur following trivial trauma or road traffic accidents. Progressive osteoporosis is believed to be the primary factor for increased incidence of femoral neck fractures in elderly.
2. No pre operative skeletal or skin traction was required
3. In our study Cemented Bipolar hemiarthroplasty was found to be safe and gave satisfactory results in 80%.
4. Bipolar arthroplasty provided early mobilization, good pain relief and good functional status was restored in majority of patients with minimal complications in elderly.
5. Thus, we conclude that cemented bipolar hemiarthroplasty is a good treatment for fracture neck femur in elderly as most of patients in rural India can't afford Total hip replacement.

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