

## To Study the Outcome in Management of Comminuted Intertrochanteric Fracture Using Cemented Bipolar Prosthesis in Elderly Patient & Its Associated Complications

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### Abstract:

The failure rates of these comminuted fractures fixed with sliding hip screws averages approximately 6-32%. In an effort to mobilize these patients more rapidly, permit early weight bearing and to avoid complications of recumbency, hemiarthroplasty has been used to treat comminuted intertrochanteric fractures. Among intertrochanteric fractures 35% to 40% of intertrochanteric fractures of hip are unstable ones which are the major cause of disability and death in the elderly. Displaced, unstable, severely comminuted intertrochanteric fractures are not easy to treat in elderly people with osteoporosis and complex intertrochanteric fracture. DHS does not allow for unrestricted weight bearing and failure rates between 5% to 12% have been reported.

**Keywords:** Hemiarthroplasty, Comminuted Intertrochanteric.

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### Introduction

Intertrochanteric fractures make up 45% of all hip fractures [1] and are the major cause of death and disability in elderly.[2] 35-40% of these fractures are comminuted and unstable three and four part configurations with displacement of posteromedial cortex. The failure rates of these comminuted fractures fixed with sliding hip screws averages approximately 6-32%.[1,3,4] In an effort to mobilize these patients more rapidly, permit early weight bearing and to avoid complications of recumbency, hemiarthroplasty has been used to treat comminuted intertrochanteric fractures.[4,5] Among intertrochanteric fractures 35% to 40% of intertrochanteric fractures of hip are unstable ones which are the major cause of disability and death in the elderly[6]. Displaced, unstable, severely comminuted intertrochanteric fractures are not easy to treat in elderly people with osteoporosis and complex intertrochanteric fracture. DHS does not allow for unrestricted weight bearing and failure rates between 5% to 12% have been reported. The treatment of comminuted intertrochanteric femur fracture in elderly patients has been a controversy

and there is limited literature on prosthetic replacement of comminuted intertrochanteric fracture. So the purpose of this study is to evaluate the functional outcome of comminuted intertrochanteric fractures treated with cemented bipolar hemiarthroplasty.

### Materials & Methods

Collection of data of patients presenting with comminuted intertrochanteric fractures are as follows

#### Inclusion Criteria:

1. Patients with age group >60yrs of either sexes.
2. Elderly patients with unstable and comminuted intertrochanteric fractures

#### Exclusion Criteria

1. Any other fracture of bone in an ipsilateral limb
2. Intertrochanteric fracture with sub trochanteric extensions

### Results

**Table 1: Type of Fracture**

| Type of Fracture (AO/OTA) | No of Cases | % of Patients |
|---------------------------|-------------|---------------|
| A2.1                      | 4           | 20%           |
| A2.2                      | 9           | 45%           |
| A2.3                      | 5           | 25%           |
| A3.3                      | 2           | 10%           |

**Table 2**

| Size of the Prosthesis | No. of Patients | Percentage (%) |
|------------------------|-----------------|----------------|
| 41mm                   | 2               | 10             |
| 43mm                   | 4               | 20             |
| 45mm                   | 8               | 40             |
| 47mm                   | 4               | 20             |
| 37mm                   | 1               | 5              |
| 39mm                   | 1               | 5              |

**Table 3: Follow Up with Harris Hip Score**

| Average Harris Hip Score at Follow-up | Score |
|---------------------------------------|-------|
| 6 Weeks                               | 68    |
| 3 Months                              | 72    |
| 6 Months                              | 78    |
| Year                                  | 86    |

**Table 4: Functional Evaluation with Harris Hip Score**

| Score               | No of cases | Percentage |
|---------------------|-------------|------------|
| Excellent ( 90-100) | 8           | 40%        |
| Good (80 -90)       | 10          | 50%        |
| Fair ( 70-80)       | 2           | 10%        |
| Poor (60-70)        | 0           | 0          |
| <b>Total</b>        | <b>20</b>   | <b>100</b> |

**Table 5: Post Operative Complications**

| Complication                | No of cases |
|-----------------------------|-------------|
| Cardio vascular             | 0           |
| Pulmonary complication      | 0           |
| Superficial wound infection | 2           |
| Deep wound infection        | 0           |
| Deep vein thrombosis        | 0           |
| Pressure sores              | 0           |
| Prosthetic/fixation failure | 0           |

**Table 6: Late Complications**

| Complications                    | No of Cases |
|----------------------------------|-------------|
| TRENDELENBURG gait               | 3           |
| Leg length discrepancy ( >1 cm ) | 2           |
| Prosthesis /fixation failure     | 0           |
| Infections                       | 0           |

## Discussion

In present study on 20 elderly patients with unstable intertrochanteric fractures treated with cemented bipolar hemiarthroplasty, out of which were males

and were females. Out of them had left hip fractured and had right hip fractured, the average pre-operative hospital stay was days. The average age of patients was 68.62 years.

| Author           | Year | Mean Age    |
|------------------|------|-------------|
| Kirankumar et al | 2013 | 72.4 years  |
| Dratulpatil      | 2013 | 65.5 years  |
| Present study    | 2018 | 68.62 years |

The patients started ambulation with walker at an average of 4.25 days after surgery, range, 2-7 days). this is comparable with studies like K.H. Sancheti et

al (4.2 days), nikunjmaru et al (4.2 days), G.kiran-kumar (5.4 days) of mean period of ambulation.

| Author                 | Year | Mean Poa in Days |
|------------------------|------|------------------|
| Green S, Moore T et al | 1987 | 5.5 days         |
| KirankumarGn et al     | 2013 | 5.4 days         |
| K H Sancheti           | 2010 | 4.2 days         |
| NikunjMaru             | 2013 | 4.2 days         |
| Present study          | 2018 | 4.2 days         |

So in present study we allowed the patients to ambulate post operatively between 2 to 7 days with mean value of 4.2 days depending on patient general condition post operatively. At the end of 6 months follow up 8 patients ( 40 %) were graded as excellent, 10 patients ( 50 %) as good and 2 patients ( 10 %) as fair is comparable to studies like K H

Sancheti et al who had out of 37 patients 7 (19.4%) had excellent results , 16 ( 44.4%) had good results and 9 ( 25%) had fair results and 2 ( 5%) had poor results and nikunjmaru et al , out of 28 patients 11 (39%) had excellent , 10 ( 35.7%) good, 4 (14.2%) fair and 2 poor results.

| Author             | Excellent | Good   | Fair  | Poor   |
|--------------------|-----------|--------|-------|--------|
| K H Sancheti et al | 19.4 %    | 44.4 % | 25%   | 5%     |
| Nikunjmaru et al   | 39.2 %    | 35.7 % | 14.2% | 10.9 % |
| Present study      | 40%       | 50%    | 10%   |        |

Two patients had shortening of more than 1 cm of the operated limb. In studies by Atulpatil et al 8 out of 126 patients and K H Sancheti et al 10 out of 37 patients and Nikunj Maru et al 5 out of 28 had limb shortening of an average of 1.1cm. A total of 4 patients had abductor muscle weakness with a positive trendelenburg test and trendelenburg gait at final follow up. 16 out of 20 patients had blood transfusion. Total 18 units of blood were transfused to 16 patients. There were two cases of superficial infection which settled with two weeks course of intravenous antibiotics and no deep infections in the present study. One case of superficial infections was seen in studies by Nikunjmaru and K H Sancheti. 2 cases of superficial infection were seen in studies by Atulpatil et al. There were no cases of heterotrophic ossification. KhSancheti et al reported heterotrophic ossification at 6-month followup, however this did not restrict the range of motion. There were no dislocation, loosening, late infections, heterotrophic ossification, protrusion acetabula, implant breakage in this present study. None of the cases developed deep vein thrombosis or hypostatic pneumonia. 7-10

### Conclusion

In conclusion primary cemented bipolar hemiarthroplasty in comminuted intertrochanteric fractures in elderly patients provides painless stable joint allowing the patients to ambulate early in the post

operative period, minimizing the complications associated with prolonged recumbency. Complications that occur as a part of proximal femur nail or plate fixation such as implant penetration into the joint space, Z effect, reverse Z effect, not able to achieve the anatomical reduction and fracture going into non union, all these are avoided by opting for the hemiarthroplasty in elderly patients.

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