

ORIGINAL RESEARCH

## Evaluation Of Short-Term Outcomes Of Indian Uncemented Bipolar Hemiarthroplasty In Transcervical Fracture Neck Of Femur

Dr Naveen Chauhan <sup>1</sup>, Dr Vikas Bhardwaj (MBBS.MS. MCH Neurosurgery)<sup>2</sup>, Dr Abhishek Deepak (MBBS.MD. DM Gastroenterology) <sup>3</sup>, Dr. Albert D'souza<sup>4</sup>,

<sup>1</sup>Assistant Professor in Orthopaedics, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India

<sup>2</sup>Assistant Professor in Surgery, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India

<sup>3</sup>Assistant Professor in General Medicine, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India

<sup>4</sup>Assistant Professor in Orthopaedics, School of Medical Science and Research, Sharda University, Greater Noida, Uttar Pradesh, India

### Corresponding author

**Dr. Albert D'souza<sup>4</sup>**

Assistant Professor in Orthopaedics, School of Medical Science and Research  
Sharda University, Greater Noida, Uttar Pradesh, India

**Email:** [albert.dsouza@sharda.ac.in](mailto:albert.dsouza@sharda.ac.in)

Received: 15 November, 2022

Accepted: 20 December, 2022

### ABSTRACT

**Background:** To assess the short term clinical and radiological outcomes of Indian Uncemented Bipolar Hemiarthroplasty.

**Materials & methods:** A total of 20 patients were enrolled. Complete demographic and clinical details of all the patients were obtained. Only those patients were enrolled with transcervical fracture neck of femur and which were scheduled to undergo bipolar hemiarthroplasty. Clinical outcome was assessed by Harris Hip Score. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software.

**Results:** Mean blood loss during surgery was 193.2 millilitres. Mean Harris hip score at baseline, 3 weeks follow-up, 6 weeks follow-up, three months follow-up and one year follow-up was 42.3, 59.8, 69.1, 78.3, and 84.8 respectively. Significant results were obtained while comparing the mean Harris hip score at different time intervals. Excellent outcome was seen in 35 percent of the patient while good outcome was seen in 40 percent of the patients.

**Conclusion:** Hemiarthroplasty using Uncemented Bipolar prosthesis for fractures of the femoral neck in satisfactory outcome and more rapid return to unassisted activity.

**Key words:** Uncemented Bipolar, Hemiarthroplasty

### INTRODUCTION

Hip fracture contributes to both morbidity and mortality in the elderly. The demographics of world populations are set to change, with more elderly living in developing countries.<sup>1</sup> Proximal femoral Fractures account for a large proportion of hospitalization

among trauma cases. Femoral neck fractures (FNFs) are extremely common. FNFs demonstrate a bimodal distribution pattern; occurring secondary to low energy falls in elderly patients, and higher energy traumatic mechanisms in younger patients. Important factors to consider in choosing any treatment modality are intrinsic, viz. patient age, general medical condition, type of fracture; and extrinsic, viz. availability of facilities and socio-economic status.<sup>2,3</sup> Hip replacement arthroplasty (partial or total) is emerging as a most viable treatment option, as it allows immediate weight bearing to return elderly patients to activity, eliminates chances of osteonecrosis and nonunion as complications of femoral neck fractures, and reduces the incidence of reoperation compared with internal fixation in the elderly. Uncemented prosthesis have been said to have a longer life span due to intrinsic bony ingrowth, which provide a long lasting fixation in comparisons to fixation by bone-cement-metal bond which tends to loosen.<sup>4-6</sup> Hence; under the light of above mentioned data, the present study was conducted with the aim of assessing the short term clinical and radiological outcome of Indian Uncemented Bipolar Hemiarthroplasty.

## MATERIALS & METHODS

The present study was conducted at our hospital with the aim of assessing the short term clinical and radiological outcome of Indian Uncemented Bipolar Hemiarthroplasty. A total of 20 patients were enrolled. Complete demographic and clinical details of all the patients were obtained. Only those patients were enrolled among which transcervical fracture neck of femur was present and which scheduled to undergo bipolar hemiarthroplasty. Clinical outcome is assessed by Harris Hip Score. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software. Chi-square test, Student t test and ANOVA were used for evaluation of level of significance.

## RESULTS

Mean age of the patients was 68.5 years. 60 percent of the patients were females while the remaining 40 percent were males. In 70 percent of the patients, left side was involved while in the remaining 30 percent, right side involvement occurred. Mean duration of surgery was 95.3 minutes. Mean blood loss during surgery was 193.2 ml. Mean Harris hip score at baseline, 3 weeks follow-up, 6 weeks follow-up, three months follow-up and one year follow-up was 42.3, 59.8, 69.1, 78.3, and 84.8 respectively. Significant results were obtained while comparing the mean Harris hip score at different time intervals. Excellent outcome was seen in 35 percent of the patient while good outcome was seen in 40 percent of the patients.

**Table 1: Duration of surgery**

Duration of surgery (mins)	Number
Mean	95.3
SD	12.4

**Table 2: Comparison of Harris Hip score at different follow-up**

Time interval	Mean Harris Hip score	SD
Baseline	42.3	3.1
3 weeks	59.8	4.8
6 weeks	69.1	4.9
3 months	78.3	5.5
1 years	84.8	6.3
p- value	0.000 (Significant)	

**Table 3: Outcome according to Harris Hip score at 1 year follow-up**

Outcome	Number of patients	Percentage
---------	--------------------	------------

Excellent	7	35
Good	8	40
Fair	4	20
Poor	1	5
Total	20	100

## DISCUSSION

Femoral neck fractures account for nearly half of all hip fractures with the vast majority occurring in elderly patients after simple falls. Currently there may be sufficient evidence to support the routine use of hip replacement surgery for low demand elderly patients in all but non-displaced and valgus impacted femoral neck fractures. This is based on a multitude of randomized controlled trials documenting improved short and long-term hip function and lower re-operation rates with hip arthroplasty as compared to internal fixation in elderly adults. Furthermore, early weight bearing protocols post-arthroplasty minimizes complications of prolonged inactivity.<sup>6-10</sup> Hence; under the light of above mentioned data, the present study was conducted with the aim of assessing the short term clinical and radiological outcome of Indian Uncemented Bipolar Hemiarthroplasty.

Mean age of the patients was 68.5 years. 60 percent of the patients were females while the remaining 40 percent were males. In 70 percent of the patients, left side was involved while in the remaining 30 percent, right side involvement occurred. Mean duration of surgery was 95.3 minutes. Mean blood loss during surgery was 193.2 ml. Mean Harris hip score at baseline, 3 weeks follow-up, 6 weeks follow-up, three months follow-up and one year follow-up was 42.3, 59.8, 69.1, 78.3, and 84.8 respectively. Sadiq M et al<sup>2</sup> conducted study to know the functional outcome of intracapsular fracture neck femur with bipolar prosthesis and to study the associated complications in these cases. Final analysis of the Harris hip score was done after completion of one year. 32 (91.43%) patients had none to slight pain, 31 (88.57%) patients had none to mild limp, 29 (82.59%) patients used none to single cane for long walks, 30 (85.71%) patients could walk unlimited to more than 500 meters. There was no fixed deformity in the patients. In the study, 32 (91.43%) patients had range of motion between 161-300 degrees. The final Harris Hip Score ranged from 59 to 97 with an average of 82.17. 9 (25.7%) of the patients had an excellent Harris Hip Score, 15 (42.9%) had good score, 7 (20%) had fair score and 4 (11.4%) had poor score. There were no significant radiological abnormalities. : Bipolar hemiarthroplasty provides better range of motions, good relief of pain and good level of activities with minimal complications. They conclude that bipolar hemiarthroplasty is a good method to manage intracapsular fracture neck of femur in elderly patients.<sup>10</sup>

Significant results were obtained while comparing the mean Harris hip score at different time intervals. Excellent outcome was seen in 35 percent of the patient while good outcome was seen in 40 percent of the patients. Rather MN et al 2021 conducted study on short-Term Outcome of Uncemented Modular Bipolar Hemiarthroplasty in Femoral Neck Fractures. In their study, the average post-op Harris Hip score was 88.3 at final follow-up with excellent in 14 patients, good in 12, fair in 2 and poor results in 2 patients. One patient developed prosthesis dislocation while 1 patient developed prosthesis infection. Modular bipolar hemiarthroplasty provides early ambulation in adults with displaced femoral neck fractures while avoid the complications of non-union and osteonecrosis associated with osteosynthesis and internal fixation.<sup>11</sup>

## CONCLUSION

Hemiarthroplasty using Uncemented Bipolar prosthesis for fractures of the femoral neck in satisfactory outcome and more rapid return to unassisted activity

## REFERENCES

1. Dhanwal DK, Dennison EM, Harvey NC, Cooper C. Epidemiology of hip fracture: Worldwide geographic variation. *Indian Journal of Orthopaedics*. 2011;45(1):15-22.
2. Gulberg B, Johnell O, Kanis JA. World-wide projection for hip fractures. *Osteoporos Int*. 1997;7(5):407-13.
3. Cooper A. *A Treatise on Dislocations and Fractures of the Joints*. London, England: Longman, Hurst, Rees, Orme and Brown; 1822.
4. Veldman HD, Heyligers IC, Grimm B, Boymans TA. Cemented versus cementless hemiarthroplasty for a displaced fracture of the femoral neck: a systematic review and meta-analysis of current generation hip stems. *Bone Joint J*. 2017 Apr;99-B(4):421-431.
5. Shi B, Xie MR, Li ZY. [Capsular-enhanced repair with suture anchors in bipolar hemiarthroplasty for the treatment of femoral neck fractures in elderly patients]. *Zhongguo Gu Shang*. 2017 Apr 25;30(4):313-317.
6. Kim JT, Kim HH, Kim JH, Kwak YH, Chang EC, Ha YC. Mid-Term Survivals After Cementless Bipolar Hemiarthroplasty for Unstable Intertrochanteric Fractures in Elderly Patients. *J Arthroplasty*. 2018 Mar;33(3):777-782.
7. Kumar R. Prospective study of hemiarthroplasty for intracapsular fracture neck of femur using modular bipolar prosthesis. *International Journal of Orthopaedics*. 2018;4(4):92-5.
8. Bashir Z, Ringshawl ZY, Bashir A, Farooq M, Wani MM. Functional Outcome of Uncemented Modular Bipolar Hemiarthroplasty Using Modified Harris Hip Score for Fractures of Femoral Neck in Elderly Patients.
9. Rahman M. Outcome of Hemi Arthroplasty Using Cemented Bipolar Prosthesis in Neglected Fracture Neck of Femur in Elderly: A Study of 1156 Cases. *Saudi J Biomed Res*. 2021;6(5):123-8.
10. Sadiq M, Mohammed Nayeemuddin DM. A study of intracapsular fracture neck femur treated with bipolar prosthesis. *European Journal of Molecular & Clinical Medicine*. 2021 Jun 17;7(11):8894-902.
11. Rather MN, Mosvi SA, Mir NA, Ali N. Short-Term Outcome of Uncemented Modular Bipolar Hemiarthroplasty in Femoral Neck Fractures. *World J Surg Surgical Res*. 2021; 4.;1311.