



FUNCTIONAL OUTCOME OF HEMIARTHROPLASTY IN ELDERLY

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ABSTRACT

Femoral neck fracture is common clinically and it is especially common in the elderly. The incidence of the fracture has been increasing year after year. Replacement of the femoral head is still recognized as the best scheme for elderly displaced femoral neck fracture, despite its controversies. Orthopaedic surgeons vary in their management of hip fractures of the hip in elderly patients. This prospective randomised study was undertaken to evaluate the functional outcome of hemiarthroplasty in elderly patient, to compare unipolar vs bipolar hemiarthroplasty and to evaluate the complications arising from above mentioned procedure.

KEYWORDS : Hemiarthroplasty, Elderly, Bipolar, Unipolar**INTRODUCTION**

Fracture neck of femur is a common Orthopaedic problem in elderly. Even with availability of different methods of treatment, the problem remains unsolved till today (1). Elderly patients are less active which increases the problem further. Healing process mainly depends on the good blood supply, hence the surgeon has to decide whether the prolonged immobilization has to be employed to achieve the bony union or quick ambulation by hemireplacement arthroplasty, to achieve fair degree of function.

There are various treatment options depending upon age, activity level, fracture pattern, etc. such as Moore's Pins, Knowle's Pins, Multiple Cancellous Screw Fixation, Dynamic Hip Screw Fixation, Austin-Moore Hemiarthroplasty, Thompson Hemiarthroplasty, Bipolar or Unipolar Modular Hemiarthroplasty, and Total Hip Replacement.(2)

Now a days Bipolar prosthesis are used, as it had an outer head of metal which articulates with the acetabulum and a second inner small metallic head which articulates with the high density polyethylene (HDPE), lining the inner surface of the outer head. Introduction of bone cement had further improved the results of hemiarthroplasty by reducing the post operative pain and facilitating early mobilization.

This prospective randomised study was undertaken to evaluate the functional outcome of hemiarthroplasty in elderly patient, to compare unipolar vs bipolar hemiarthroplasty and to evaluate the complications arising from above mentioned procedure.

MATERIAL AND METHODS

The study was conducted on 50 patients in the Department of Orthopaedics in Central India. All adults (Male and Female) of age greater than 60 years with displaced fracture neck of femur were included. Whereas patients with Undisplaced or pathological fracture neck of femur were excluded from the study.

Pre operative management and assessment:

Patients were admitted to the ward and detailed history was taken with particular emphasis on mode of injury, associated medical illness and pre fall mobilisation status and pre fall Harris Hip Score was calculated. In depth, clinical assessment was carried out. Preoperatively Buck's traction with appropriate weight was applied, to the fractured lower limb and appropriate analgesics were given preoperatively. True Antero-posterior radiographs of pelvis with both the hip joints were taken for all the patients, keeping both the hips in 15 degree internal rotation. Surgical fitness was taken from the Anaesthetist.

Patients were randomised for Unipolar or Bipolar hemiarthroplasty group.

SURGICAL PROCEDURE

Positioning - All patients were placed in lateral position with the patient lying on the unaffected side. The skin over the hip was scrubbed with povidone iodine scrub solution. The lower extremity from the groin to the toes was draped in sterile towels separately to enable easy manipulation of the limb during surgery.

Exposure - Standard Posterior Approach was used in all the patients undergoing Hemiarthroplasty.

Skin incision starting from a point 10 cm distal to posterior superior iliac spine and extended distally and laterally parallel to the fibers of gluteus maximus to the posterior margin of the greater trochanter and then directed about 10 cm parallel to the femoral shaft.

Deep fascia was exposed and divided in the line with the skin incision as also was the fascia over gluteus maximus, which was then split in the direction of its fibers using blunt dissection.

By retracting the proximal fibers of the muscle proximally, the greater trochanter was exposed. The external rotators were divided at their insertions after tagging them with sutures for easier identification and reattachment. 'T' Shaped incision was given over the capsule. Then the knee was flexed up to 90°, adducted and, internally rotated thus dislocating the hip posteriorly. The femoral head was extracted using bone levers or corkscrew and size measured using femoral head gauge. The acetabulum was prepared by excising remaining ligamentum teres and soft tissue.

Preparation of neck and canal – The level of the proposed osteotomy of the femoral neck was marked with the electrocautery and the neck is cut using an oscillating battery operated saw retaining approximately 2 to 2.5 cm of calcar over lesser trochanter at an angle parallel to that of the prosthesis shoulder.

The femoral canal was reamed using serial Rasps, with the entry point being more laterally, so as to avoid a varus position. The reamer (rasp) should be positioned in the femoral canal with 5 - 10° of anteverision while reaming.

The canal was prepared for cementing by giving high volume lavage with normal saline, a medullary bone plug was inserted inside the canal to prevent the cement from percolating down the medullary canal. Bone Cementing was done and the prosthesis was then inserted into the femoral shaft in about 5-10 degrees of anteverision, impacted into the femur and held in position till the cement was set (12 minutes from mixing the monomer). The reduction of the prosthesis was then done using gentle traction of the thigh. The hip was tested for full range of movements and stability intra operatively.

Closure - Absolute haemostasis was obtained. After suturing the capsule, the external rotators were sutured and reattached to the Greater trochanter, the wound was closed in layers over a negative suction drain and sterile dressing was applied.

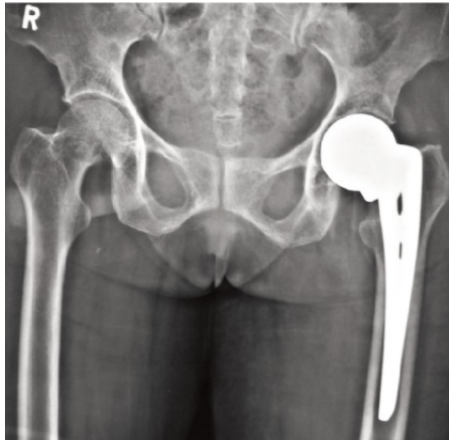


Figure 1: Showing AP radiograph of patient operated with Unipolar Hemiarthroplasty.



Figure 2: Showing AP radiograph of patient operated with Bipolar Hemiarthroplasty.

OBSERVATION AND RESULTS

In our study the mean age was 67 years (range 60 to 85 years), of the total sample, 67.05 years in the Bipolar group and 66.2 years in the Unipolar group. Both unipolar and bipolar group had female predominance i.e. in the Unipolar group (72.22%). Majority of the patients sustained injuries due to accidents (36.84%), with no statistical difference amongst the two groups depending upon the mode of trauma. Both the groups scored excellent Harris Hip Score with no statistical difference between the two groups and average being 82.3. Both groups took near about same operative time. Two patients in Unipolar group developed post operative infection which was managed with debridement. There were four patients in Bipolar and Unipolar group who developed bed sores and two had dislocation in Bipolar group which was managed by closed reduction. However there was no statistical difference between the two groups ($p > 0.05$). Follow ups of both the groups in 3 months and 6 months according to Harris Hip score was excellent.

DISCUSSION

The average age of patients in our study was 67 years which is similar to the age distribution discussed by Mostafa et al (3) and Malhotra et al (4) However Calder et al(5) reported higher average group of patients. In our series the Intracapsular fracture of femoral neck were found to be more common in females (60.53%). Henery et al.(6), John E. Kenzora (7) Calder et al.(5) also reported similar findings

We had no immediate operative deaths in our series, however Kenzora et al(7), Bavadeka and Manelkar et al (8) reported good number of cases with mortality. Low motality in our case may be due

proper selection of cases. Two patient in Unipolar group developed post operative infection which was managed with re exploration, thorough wash, debridement and antibiotics, the prosthesis was not removed. Infections were found in the studies of D'Acry and Devas(9) and Mukherjee and Puri(10) however the incidence was low even in their case. The low infection rate in our study could be attributed to laminar air flow along with the strict aseptic precautions maintained in our operating room. The protocol of pre operative antibiotics and the longer duration of post operative antibiotics administration is also a contributing factor.

Two patients had dislocation in Bipolar group which was managed by closed reduction, which supports the observation of Paton et al (11) that the Bipolar devices do not offer any additional protection against dislocation when compared with the traditional Unipolar devices.

There were four patients in Bipolar and Unipolar group each who developed superficial bed sores.

In our study 85% patients in Bipolar group and 74.34% patients in Unipolar group had a good functional outcome with the mean Harris hip scores being 81.70 in Bipolar and 84.55 in the Unipolar group respectively at 3 months follow up, there was no statistical difference between the two groups on 3 months follow up. Similar results were obtained from the mean Harris hip scores for both the groups at 6 months follow up which is comparable with studies done by Henery et al.(6) and Calder et al.(5) and Pal CP et al (12).

CONCLUSION:-

There was no as such statistical difference in terms of functional outcomes of unipolar and bipolar hemiarthroplasty in fracture neck femur in elderly patients and hemiarthroplasty is a good option to go for in elderly patients as the rate of complication is less and it can give them a better life to continue their day to day activities without any problem.

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