Introduction: Fractures of neck femur in elderly have always been a challenge for Orthopaedic surgeons as it is associated with various medical co-morbidities. By 2050 this number is suspected to be between 4.5 million - 6.3 million. Unipolar prosthesis is still extensively used in developing countries in low demanding patients. This study was undertaken to evaluate the functional and radiological outcome of geriatric patients treated with Austin Moore's prosthesis.

Methods: Geriatric patients with femoral neck fractures, managed with hemiarthroplasty using Austin Moore's prosthesis between January 2010 to March 2015 were included in this study. The data was extracted from the record room of our hospital. The patients were called up once and were analysed clinically using the Harris hip score. Radiologically the assessment was done on the Antero-Posterior & Lateral radiographs of the hip to look for seating of the collar of the prosthesis on the calcar, enlargement of the medullary canal, any degenerative changes over the acetabulum, varus pivoting, subsidence, osteolysis along the stem of prosthesis & lack of ossification in the fenestration hole of prosthesis.

Results: 112 patients fulfilled the inclusion and exclusion criteria and were included in the study, out of which 13 expired & 4 patients didn't turn up for the follow up. Remaining 95 patients were included in the study. Mean duration of follow up in our study was 5.7 years (Range – 8.4 years to 3.6 years). 64.21% showed good while 3.16% showed poor Harris hip score. Radiologically 65 patients showed prosthesis collar seating over calcar while 11 patients showed acetabulum changes, 15 had enlarged medullary canal, 13 showed varus pivoting, 17 hip showed osteolysis along the stem of prosthesis, subsidence was seen in 14 patients and 53 patients showed lack of ossification in the prosthesis fenestration hole.

Conclusion: Though the unipolar Austin Moore's prosthesis faces criticism for causing degenerative arthritis of hip, a year or two after surgery. Majority of patients showed excellent to good results. We concluded that the use of Austin Moore's prosthesis is a good treatment of choice in fracture neck of femur for geriatric patients.

Keywords: Fracture neck of femur, Austin Moore's prosthesis, Harris hip score

1Department of Orthopaedics, Teerthanker Mahaveer Medical College And Research Centre, Teerthanker Mahaveer University, Moradabad, India PO - 244001.

Address of Correspondence:
Dr. Pulkit Jain,
Department of Orthopaedics, Teerthanker Mahaveer Medical College And Research Centre, Teerthanker Mahaveer University, Moradabad, India PO - 244001.
E-mail: pjain1060@gmail.com
The factors that are usually considered in choosing the type of prosthesis are the general medical condition of the patient, age of the patient & the type of fracture including the availability of amenities in the health care delivery system & socioeconomic status of the patient. This study was aimed primarily to evaluate the functional and radiological outcome in geriatric patients of femoral neck fractures managed with Austin Moore’s Prosthesis at least 3 years back.

Materials And Methods
This was a retrospective study conducted in the Department of Orthopaedics, a tertiary care hospital. Elderly patients (>60 years) of fracture neck of femur managed with hemiarthroplasty using the Austin Moore’s prosthesis & were operated at our hospital between January 2010 to March 2015. Patients with poly trauma, presently non ambulatory due to any co morbidities, psychiatric illness & patients with pre-existing inflammatory arthropathies were excluded. The data pertaining to patients of fracture neck of femur managed with hemiarthroplasty using the Austin Moore’s prosthesis was recovered from the medical record room of our hospital. The patients fulfilling the inclusion criteria were called up once after 3 years of surgery. The study was only initiated after receiving the clearance from ethical committee. An informed written consent was obtained from all the patients included in this study.

For functional assessment Harris hip scoring system[10] was used while for radiological assessment various parameters like seating of the collar of the prosthesis on the calcar, enlargement of the medullary canal, any degenerative changes over the acetabulum, varus pivoting, subsidence, osteolysis along the stem of prosthesis & lack of ossification in the fenestration hole of prosthesis.[11]

The Harris hip score (HHS) is a clinician based outcome measurement in cases with hip pathology. It includes pain severity, function which is assessed by daily activities and gait, the absence of deformity (hip flexion, adduction, internal rotational, leg length discrepancy and range of motion). The survey has 10 questionnaire and score ranges from 0-100 with higher scores representing less dysfunction and better outcomes.

Radiological Evaluation(11)
1. Prosthetic implantation(11)
   - The position of stem is in varus or valgus
2. Seating of the prosthesis collar on the calcar(11)
3. Any degenerative changes over the acetabulum.(11)
   - Presence of osteophytes over the acetabulum.
4. Any Loosening Of The Prosthesis(11)
   a. Enlargement Of The Medullary Canal
5. Prosthesis Femoral loosening include(11)
   I. Varus pivoting
   ii. Subsidence
   iii. Presence of osteolysis along the prosthesis stem
   iv. Absence of ossification in the fenestration hole of prosthesis

Results
112 patients fulfilled the inclusion and exclusion criteria were recruited in the study & of these 13 expired while 4 were lost to follow up. Remaining 95 patients were included in the study.

The mean follow up of patients(n=95) was 5 years and 7 months in which maximum duration was 8.4 years while minimum was 3.6 years.

The maximum number of patients were in the age group of 60-65 years (n=32), followed by the patients in 66-70 years of age group (n=24). The mean standard deviation was 70.68± 7.75(60-95).

During radiological assessment Seating of the prosthesis...
collar on the calcar was seen in 68.42% (n=65) of patients which is a good sign while 16.92% (n=11) patients showed degenerative changes over the acetabulum, 15.79% (n=15) had enlarged medullary canal, 13.68% (n=13) had varus pivoting, 17.89% (n=17) hip showed osteolysis along the stem of prosthesis, subsidence was seen in 14.74% (n=14) of patients and 55.79 % (n=53) patients showed absence of ossification in the fenestration hole of prosthesis.

**Discussion**

In this study, out of 95 patients of fracture neck of femur, the average age was found to be 70.68 years in which majority of patients were in the age group between 60-65 years (n=32) followed by 66-70 years (n=24). There were 39 patients who were more than 70 years of age.

**Radiological Evaluation**

In our study on the basis of radiological assessment of patients, we found that majority of patients 68.42% (n=65) had seating of the collar of the prosthesis on the calcar while 16.92% (n=11) patients showed degenerative changes over the acetabulum, 15.79% (n=15) had enlarged medullary canal, 13.68% (n=13) had varus pivoting, 17.89% (n=17) hip showed osteolysis along the stem of prosthesis, subsidence was seen in 14.74% (n=14) of patients and 55.79 % (n=53) patients showed lack of ossification in the fenestration hole of prosthesis.

In this study, 12.63% (n=12) showed excellent results while
64.21% (n=61) of patients i.e majority were found to have a good Harris hip score followed by 20.0% (n=19) of patients showed fair and least i.e 3.16% (n=3) of patients showed poor Harris hip score.

In all age groups, the majority i.e 22 patients were found in age group of 60-65 years with good Harris hip score. In broader aspect all age group most of the patients had good Harris hip score were found to have good Harris hip score followed by 20.0% patients in fair, 12.63% in excellent and least 3.16% patients in poor Harris hip score.

In all age groups, the majority of patients (n=22) were found to be in age group of 60-65 years having a good Harris hip score. In broader aspect, most of the patients had a good Harris hip score. However, all the studies cited above have a follow up of < 3 years.

Limitations of the study

1. The outcomes were assessed in a single modality group that limits its superiority or inferiority over the other modalities of treatment.
2. No current established radiological evaluation system was used to assess the outcome.
3. Study carried out at single center

Conclusion

In the follow up, most of the patients showed excellent to good results while very few showed poor results. Although most the patients had difficulty in squatting, which is considered as an essential requirement as per the Indian scenario.

On the basis of our results we conclude that the use of Austin Moore's prosthesis is a good treatment of choice in geriatric age group with femoral neck fractures.

Hemiarthroplasty using Austin Moore’s prosthesis is a well known procedure among Indian Orthopaedics surgeons, as it is less time consuming, less expensive, easily available & can be performed at a limited resource centre.

In our study we didn’t compare any other modality in fracture neck of femur, other than Austin Moore’s prosthesis, due to which we cannot comment on it’s superiority or inferiority over other modalities.

References


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