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Original Research Paper

Functional Outcome Of Hemiarthroplasty Using Austin Moore Prosthesis

Biju.S [1], Jayachandran[2], Arun Joseph Paul[3], Joji Krishnan[4*]

[1]*(Associate Professor, Department Of Orthopaedics, Government Medical College,Trivandrum,Kerala, India)*
[2,4]*(Assistant Professor, Department Of Orthopaedics, Government Medical College,Trivandrum,Kerala, India)*
[3]*(Senior Resident, Department of orthopaedics, Government Medical College,Trivandrum,Kerala, India)*
[*]Corresponding author: Dr. Joji Krishnan

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ABSTRACT:

Femoral neck fractures, one of the most common injuries in the elderly[1], have always presented great challenges to orthopaedic surgeons. The incidence of these fractures has increased with improvement in life expectancy[2]. Experience of the last four decades has shown that hip arthroplasty is the best treatment for intracapsular fracture neck of femur in elderly in terms of both short-term and long-term results[1,3–5]. This is particularly applicable to the elderly subjects, where complications related to prolonged immobilization need to be prevented[6]. Hemiarthroplasty can be performed using Austin Moore, Bipolar or Thompson prosthesis[7,8]. In our study of 162 patients who underwent hemiarthroplasty using Austin Moore prosthesis from February 2018 to October 2018, we have tried to assess their functional outcome and quantify them using Harris hip score. Most subjects were elderly with average age of 77.20 & majority of them were females (59%). 71subjects (43.8%) had Diabetes Mellitus, 57 (35.2%) had Osteoarthritis of the knee joint and 4 (2.5%) had previous history of Cerebrovascular Accident. Post operatively, 35.2% of the subjects could walk unlimited distance without major symptoms, 47.5% of them could walk 6 to 8 blocks, 12.3% could walk 2 to 3 blocks and 4.9% could walk indoors only. 29% subjects had no limp whereas 59.3% had slight limp, 8.6% had moderate limp and 3% had severe limp. 22.8% subjects did not use any support for walking, 53.1% of them used cane for long walks, 19.8% used cane most of the time and 4.3% used one crutch for walking. Functional outcome quantified in terms of Harris hip score[9,10] showed 32.7% of excellent score, 35.8% (good score), 22.8% (fair score) and 8.6% (poor score). We conclude that the results were good enough to recommend, considering the less economic burden & the advantage of early mobilization, while preventing potential complications of recumbence.

Keywords: Femoral neck fracture, Hemiarthroplasty, Austin Moore prosthesis, Functional outcome

INTRODUCTION

Femoral neck fractures, one of the most frequent accidents in the elderly, have usually introduced wonderful challenges to orthopaedic surgeons. The incidence of these fractures has elevated with enchancment in lifestyles expectancy and is predicted to double in the subsequent 20 years and triple through 205011. The important aim of cure of femoral neck fractures is restoration of pre-fracture characteristic besides related morbidity12. Experience of the remaining 4 a long time has proven that hip arthroplasty is the pleasant remedy for intracapsular fracture neck of femur in aged in phrases of each temporary and long-term results4. The purpose of alternative surgical procedure in fracture neck femur is early return to every day things to do and pre fracture levels. This is mainly relevant to the aged age crew the place problems associated to extended immobilization want to be prevented. There are quite a few sorts of arthroplasties together with hemiarthroplasty and whole arthroplasty13. Hemiarthroplasty is achieved the use of special sorts of prostheses inclusive of Austin Moore, Bipolar and Thompson prosthesis. In our institution, Austin Moore prosthesis is used ordinarily due to the fact of its fee effectiveness, ease of procedure, affordability and accessibility to the patient. Most sufferers with intracapsular fractures are additionally medically unstable. Hence, to furnish early mobility and to stop problems such as deep vein thrombosis, infections and mattress sores, hemiarthroplasty is finished at the earliest14. The Austin Moore Prosthesis is designed about comparable to anatomical structure of femoral head. The fenestrated stem lets in the bony in boom for multiplied fixation, and is frequently augmented the usage of cancellous graft from the eliminated femoral head. The Austin Moore Hip Prosthesis is reachable in one-of-a-kind head sizes to in shape precisely in acetabulum. Austin Moore prosthesis is mainly beneficial in sufferers with right calcar as it presents true support15.

1. MATERIALS AND METHODS

In this Prospective study, a total of 162 consecutive subjects who underwent AMP hemiarthroplasty for intracapsular femoral neck fractures at the department of orthopedics, government medical college Trivandrum, between February 2018 to October 2018, were included. Only those who did not give consent for study were excluded. Study variables included demographic variables (age & sex), Co-morbidities (Diabetes Mellitus, Osteoarthritis of knee, Cerebro Vascular Accident), details of Investigations (X ray knee AP/ Lateral, pre & post operative x-rays of hip with femur AP & Lateral views), information from patient interviews. Outcome measures included Proportion of patients without limp, Proportion of patients walking without support, Mean walkable distance & Mean Harris hip score. All variables and findings were recorded using a structured questionnaire.

1.1 STATISTICAL ANALYSIS

Data was be entered into Excel sheet • · Categorical variables were expressed as proportions and quantitative variables as mean and Standard deviation • · Analysis of data was done using appropriate statistical software. Outcome measures included Proportion of patients without limp, Proportion of patients walking without support, Mean walkable distance & Mean Harris hip score.

2. RESULTS

1.2 Demographic profile

Of the 162 subjects aged between 70-98 years with Neck of femur fractures undergoing AMP hemiarthroplasty, the mean age was 77.20yrs (with SD of 5.46)**.** 67subjects (41.4%) were males and 95(58.6%) were females. 71 subjects (43.8%) were having Osteoarthritis of the knee joint. 57subjects (35.2%) were having Diabetes Mellitus while 2.5% of the patients had suffered from Cerebro Vascular Accidents at an earlier phase and were recovering from the same.

1.3 Outcome measures

Walkable distance: Though part of the Harris Hip Score, it was analysed separately. we found that 35.2% of the patients could walk an unlimited distance without major symptoms while 47.5% of the patients were able to walk 6 to 8 blocks. 12.3% of the patients could walk a distance of 2 to 3 blocks while 4.9% of the patients could walk indoors only.

Limp: No walking abnormality or limp was noted in 29%(47subjects),59.3% (96 subjects)had slight limp while walking while 8.6%(14 subjects) had moderate limp and 3.1% (5 subjects)had severe limp.

Use of supports: Use of supports for walking which is also a part of Harris hip score was also analysed separately. 22.8%(37patients) used no support, 86 patients(53.1%) used cane for long walks, whereas 32 patients (19.8%) used cane most of the time, and 7patients (4.3%) used one crutch for walking.

HARRIS HIP SCORE (FUNCTIONAL OUTCOME)

Functional outcome of the surgery was calculated using Harris Hip Score and results analysed. 32.7% (53) patients had excellent outcome, 35.8% (58) had good outcome while fair outcome was observed in 37patients (22.8%) and poor outcome was observed in 14 patients(8.6%). Age in years was compared with Harris Hip Score and there was found to be a decrease in functional outcome with increase in age. The result was found to be statistically significant.

Age in years	HHS				Total	
	Good		Poor			
	N	%	N	%	N	%
≤ 75	43	75.4	14	24.6	57	100
76 – 80	51	71.8	20	28.2	71	100
>80	17	50	17	50	34	100
Total	111	68.5	51	31.5	162	100

χ^2=7.032 df=2 p=0.030

Table 1: Paired comparison of age in years with Harris Hip Score

Functional outcome in patients with osteoarthritis of the knee joint were compared with those without. We found the functional outcome to be significantly better in patients without Osteoarthritis of the knee(χ^2=21.652 df=1 p<0.001).

OA	HHS				Total	
	Good		Poor			
	N	%	N	%	N	%
Present	35	49.3	36	50.7	71	100
Absent	76	83.5	15	16.5	91	100
Total	111	68.5	51	31.5	162	100

χ^2=21.652 df=1 p<0.001

Table 2: Paired comparison of Osteoarthritis with Functional outcome

Males had better functional outcome than females in terms of Harris Hip Score. This was statistically significant with χ^2=4.380 df=1 p=0.036

Gender	HHS				Total	
	Good		Poor			
	N	%	N	%	N	%
Male	52	77.6	15	22.4	67	100
Female	59	62.1	36	37.9	95	100
Total	111	68.5	51	31.5	162	100

χ^2=4.380 df=1 p=0.036

Table 3: Paired comparison of gender with Functional outcome

DISCUSSION

Neck of femur fracture still remains a challenge in orthopaedic fracture management[16]. The spectrum of treatment modalities ranges between internal fixation in younger subjects to prosthetic replacement in elderly. We chose to evaluate the immediate outcome of subjects treated by hemiarthroplasty with Austin Moore prosthesis taking into consideration the financial status of the average rural population, though the expensive alternative of bipolar prosthesis was found to have better long-term outcomes after surgery. We had patients of age 70 to 98 years, with mean age of 77 years, of which 59% were females and 41% males. Women, having a wider pelvis to accommodate the birth canal has a higher lever arm ratio, predisposes them to higher hip forces thereby leading to increased incidence of fractures around the hip. We found that females had significantly poorer functional outcome as compared to males. Subjects without OA knee had a better outcome in terms of the Harris hip score than subjects with the disease. Although previous data on this account are not available, the interference in the bipedal functions by a symptomatic arthritic knee could have contributed to this association. We observed that 83% of the patients could walk a distance of 6 to 8 blocks or more without major symptoms after one year of surgery. Our results were in concordance with the observations of Sudhir et al, Mukherji et al, Bavadekar et al[17] ,in terms of walkable distance and functional outcome.

CONCLUSION

In our present study of Hemiarthroplasty with Austin Moore Prosthesis in 162 patients with neck of femur fractures, we found that majority of the patients had good to excellent Harris Hip Scores post operatively. In neck of femur fractures in the elderly, where the primary concern is early mobilisation of the patient, the relatively simple procedure of AMP can enable the patient to bear weight on the second post operative day itself. In Kerala, the average life expectancy is 72 for men and 77.8 for women. Since majority of the patients fall in the age group of 76 to 80, the use of AMP can be justified in terms of the immediate post-op outcome and the number of years remaining.At a Government institution like Thiruvananthapuram medical college, where the majority of the patients treated for neck of femur fractures come in Below Poverty Line category,the AMP puts the patients and family in much less economic burden with fairly good results to be recommended.

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