ORIGINAL ARTICLE

The Outcome of Hemiarthroplasty for Neck of Femur Fractures in Terms of Harris Hip Score

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ABSTRACT

Aim: To evaluate the outcome of hemiarthroplasty after neck of femur fracture in terms of Harris Hip Score.

Methods: This Quasi experimental study was carried out at Department of Orthopaedic and Trauma Unit, Hayatabad Medical Complex, Peshawar from 16th April 2007 to 15th April 2009. The study included a total of 62 patients. Patients were included in the study if they had acute neck of femur fracture and were 60 years or older at the time of presentation. All the patients underwent Austin Moore hemiarthroplasty. Patients were followed for a total of one year. The outcome of hemiarthroplasty was assessed using the Harris Hip Score.

Results: The mortality at one year was 7 cases (11%). The Average Harris hip score was 71.4 ranging from 43 to 91. The Harris hip score in male patients averaged 72.8 while in females 70.6.

Conclusion: Hemiarthroplasty remains a useful mode of treatment for fracture neck of femur in patients aged 60 years and above. The Harris Hip score provides and easy and effective tool in assessment of outcome after hip surgery.

Key words: Fracture neck of femur, Hemiarthroplasty, Harris Hip Score

INTRODUCTION

Neck of femur (NOF) is the commonest site of fracture in the elderly.[1,2] These fractures are difficult to treat and treatment results are not entirely satisfactory even today.[2,3] Most of the fractures occur in elderly individuals due to minor to moderate trauma while in younger patients these usually results from high energy trauma. Fracture NOF is associated with considerable morbidity and higher mortality than the general population. It can be complicated by immobilization, skin breakdown, pulmonary and bowel dysfunction, disorientation, deep vein thrombosis, avascular necrosis and nonunion[4,5]. The mortality at one year range from 14 to 48%in different studies[4,6,7].

The goal of the treatment varies according to the age of patient. In young patients, the goal is to achieve early union, prevent deformity and regain the pre injury functional status. In old patients, the goal of treatment is early mobilization, restoration of function and prevention of complications.[1,3,5] The operative choice is between internal fixation (IF) and prosthetic replacemen.[1,8] Prosthesis are commonly used for elderly patients and choice of lies between hemiarthroplasty, bipolar arthroplasty and total hip replacement (THR).[7] Hemiarthroplasty by Austin Moore prosthesis (AMP) is less expensive. Its advantages are that patients are allowed immediate weight bearing so they return earlier to activity avoiding complication of recumbency, inactivity, avascular necrosis and non union. In addition the rate of reoperation is lower in older patients treated by hemiarthroplasty as compared to internal fixation.[1,5,7]

The aim of this study was to evaluate the outcome of hemiarthroplasty (AMP) for NOF fractures in terms of Harris hip score (HHS). This will help us check the adequacy of our management and also point out any shortcomings.

PATIENTS AND METHODS

This qausiexperimental study was conducted in the Department of Orthopaedic surgery, Post graduate Medical Institute, Hayatabad Medical Complex (HMC), Peshawar, from 16 April 2007 to 15 April 2009. The study was conducted after approval from the hospital ethics committee. The study included a total of 62 patients. Patients were included in the study if they had acute neck of femur fracture and were 60 years or older at the time of presentation. Patients who were bed ridden before the injury, those with pathological fractures, open neck of femur fractures, those unfit for anesthesia, patients with dementia or parkinsonism, and those with fracture duration more than one months were excluded from the study.

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A detail history was taken from all the patients admitted through emergency or outpatient department, followed by complete physical examination. Patients were interviewed about their pre fracture ambulatory status and any disabilities using HHS. Radiographs were obtained and all treatment options were presented in detail to the patient and their relatives. The operation by AMP was explained to them with the potential benefits and risks in detail and an informed consent was taken. All patients were operated on the elective list through Harding's anterolateral approach the patient being on lateral position, either with general or spinal anesthesia. The patients were allowed to sit on first postoperative day and immediate partial weight bearing was allowed as tolerated by the patient. Physiotherapy was started immediately. The intravenous antibiotics were continued for 3 to 5 days and then oral antibiotics were given to a total of 7 to 10 days. A check x-ray was done on the first post-operative day to confirm the proper positioning of the AMP.

The total follow up period was one year. Follow up visits were scheduled at 2 weeks, 6 weeks, 6 months and one year post-operatively. Skin stiches were removed at 2 weeks and complications were recorded at each follow up visit. At the last follow up visit each patient was assessed according to the HHS Performa. Those patients who did not come for follow up at the proper time were contacted on telephone and were persuaded to come for checkup. In this way information was also gathered about those patients who had died. The data was recorded and analyzed using SPSS (Statistical package for social sciences) version 14. Mean and standard deviation was calculated for all quantitative variables e.g. age and HHS. Frequencies and percentages were presented for all qualitative variables like mortality, sex and pain. Chi Square statistical test was applied to know the significance of various results.

RESULTS

The study included a total of 62 patients with neck of femur fracture who underwent Austin Moore Hemiarthroplasty. The follow up period was one year. The baseline patient characteristics and type of anesthesia used for the procedure is summarized in table 01. The mortality at 6 weeks were 2 cases (3%). Only one patient died in the hospital on the 6th postoperative day due to pulmonary embolism while 2 patients died at home after discharge from the hospital during the first month period after the operation. The mortality at six months was 5 cases (8%) and at one year were 7 cases (11%). Deaths occurred at home and information was collected about these patients from their relatives thru phone call. The functional outcome was determined by HHS. It was assessed at the completion of one year during the final visit of the patient. Out of the originally included 62 patients 7 died, 12 were lost for follow up and so only 43 patients were assessed for the final outcome score. The Average HHS was 71.4 ranging from 43 to 91. The Harris hip score in male patients averaged 72.8 while in females it was 70.6. The HHS was graded as excellent (score 90-100 points), Good (80-89), Fair (70-70), Poor (60-69) and failed result below 60 points. In 16 (37.2%) male patients the range of HHS was from 58 to 91 (average 72.8) points. Only one patient (6.3%) had a score graded as excellent while 5 (31.3%) patients had score of 80 to 89 classified as good. There were 6 (37.5%) patients in the fair category while 3 (18.8%) patients got poor score between 60 and 69. Only 1 (6.3%) patient got 58 points and was considered as failed result. In the case of females total of 27 (62.7%) patients were assessed for determination of their HHS. No patient in the females was ranked excellent while 9 (33.3%) patients got the good category. There were 11 (40.7%) female patients in the fair group while 5 (18.5%) patients were classified as poor. Two female (7.4%) patients got a score of 43 and 48 and were classified as failed outcome. Finally the combined male and female result by HHS was excellent in one (2.3%) patient only, it was good in 14 (32.6%) patients and 17 (39.5%) patients were placed in the fair group. In the poor category there were 8 (18.6%) patients while 3 (7%) patients had failed results.

Table 1: Demographic data of the patients

Variable	**No.**	**%**
Gender (Total =62, missing 12)		
Male	29	46.77
Female	33	53.22
Type of anaesthesia (n = 62)		
General	38	61.2
Spinal	24	38.8

Table 2: Frequency of mortality in genders at one year

Mortality	**No.**	**%**
Male	3	4.8
Female	4	6.4

Table 3: Harris Hip Score in genders at 6 months post-operatively

Average Harris Hip Score	71.4
Average Harris Hip Score in male	72.8
Average Harris Hip Score in female	70.6

Table 4: Comparison of Harris Hip Score in genders

Haris Hip Score (points)	Female	Male	Total
90 - 100	-	1 (6.3%)	1 (2.3%)
80 - 89	9 (33.3%)	5 (31.3%)	14 (32.6%)
70 - 79	11 (40.7%)	6(37.5%)	17 (39.5%)
60 - 69	5 (18.5%)	3 (18.8%)	8 (18.6%)
< 69	2 (7.4%)	1(6.3%)	3 (7%)
Total	27(62.7%)	16 (37.3%)	43 (100%)

DISCUSSION

Treatment of displaced NOF fractures remains one of the ongoing controversies in modern day fracture care. Treatment in young patients is by stable internal fixation as early as possible, the AMP is one of the commonly used methods in geriatric group[9,10]. We have selected patients above sixty years of age for implantation of AMP because people of this age are generally retired in our society and they are less mobile and less active. The average age of the patients in our study was 67.8. Some authors have advocated hemi-replacement in patients over 70 years of age. The average age in our study is lower than the western studies but it is comparable with the age for AMP in the Indian studies. This can be explained on the basis of a lower life expectancy amongst the subcontinent population as compared with the West. Thus in the West, patients of comparable age group are relatively more active and hence probably treated with bipolar prosthesis or total hip arthroplasty[11,12].

The mortality in our study at one year was 7(11.2%) patients out of 62. The mortality in male patients was 3(4.8%) out of 25(40.32%) while in female it was 4 (6.4%) out of 37(59.67%). The mortality in our study is lower than the mortality reported in most of the studies[13]. Several scoring systems have been devised to assess the outcome after hip surgery HHS, Iowa, judet, postel system and oxford hip score are examples of such scoring systems. Some systems rely on judgment of the surgeon while others depend upon the perception of the patient[14]. HHS is the most commonly used system. The variables include pain, gait and the ability to perform certain activities of daily life. In HHS pain, which is patient dependent is given 44 marks. Function is given 47 points and is divided into gait, the use of support and activities. There are five points for range of movements and four points for absence of deformity[15,16].

The functional outcome of the patients treated by AMP in our study was calculated according to HHS. This is done in order to quantify the benefits of treatment. According to Bryant at el the measured outcome of a hip arthroplasty depends upon the hip score used to measure that outcome. He also observed large differences between the results of different scores which used descriptive terms such is excellent, good or failure and better correlation between numerical scores one of which is the HHS[17].

The average HHS in our study was 71.4. This is comparable with the HHS reported in most of the western studies. In a study by Clayer and Bruckner[18] for the outcome of AMP Harris hip score was 69 (range, 41 to 97) at 5 years and 69 (range, 25 to 90) at 10 years. The overall failure rate was 6.5% at 5 years and 7.7% at 10 years. At 3 years, 46% of the patients were community ambulators; 10%, household ambulators; 6%, nonfunctional ambulators; 29%, non-ambulators; and 9% unknown. Patients younger than 70 years at the time of fracture had a statistically significantly higher revision rate than did older patients. The results of our study are marginally better than this study but there are a few observations to be made. The first one is that the follow up period in our study is shorter and secondly lower average age in our patients may be the reason for the better outcome. It has been observed that the functional outcome of AMP is inferior in younger patients but that is due to acetabular erosion and loosening which probably takes more than a year to develop. Gill et al[19] stated that medium term surviving Austin Moore patients should be followed as their hip function may deteriorate excessively with time.

One study showed better results than ours. It was by Marcus et al who achieved an average HHS of 76 in patients with AMP with a mean follow up of 26 months[20]. The difference in HHS between males and females was tested by Chi square but was found to be insignificant in both cases. Our overall result by HHS was excellent or good in 32.6% of cases while it was fair in another 39.5% of cases. Only 25% of cases had poor or failed outcome. These results are comparable to results obtained in the western and subcontinent literature. The percentage of unsatisfactory results quoted in literature is variable ranging from 13% to 48% in Western series and 9% to 36% in Indian series. In a study on functional outcome of AMP by Jadhav et al[21] final results were unsatisfactory (fair, poor and failure classes) in 15 cases (35%). To improve the percentage of satisfactory results the changes proposed include cementing the stem for secure fixation and reduction of the friction between the prosthetic head and the acetabulum by total hip arthroplasty or bipolar prosthesis.

CONCLUSION

Hemiarthroplasty remains a useful mode of treatment for fracture neck of femur in patients aged 60 years and above. Hemiarthroplasty is a treatment which

has many advantages, since it allows the immediate return to daily activities and avoids bed rest complications. This procedure carries the advantages of a relatively short duration of operation and reasonable clinical outcome. Assessment of outcome after hemiarthroplasty is essential. The Harris Hip score provides and easy and effective tool in assessment of outcome after hip surgery.

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