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Original Research Article

Comparative Evaluation of Prognosis of Patients with Hip Fracture among Different Age Groups: An Institution Based Study

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ABSTRACT

Background: Hip fracture is one of the common fractures reported among both the young and elderly population in the recent time. Approximately 60 to 80 percent of the patients with hip fractures have been reported to be ambulatory at discharge. The factors influencing walking ability after treatment include age, pre-injury walking ability, status of dementia, and status of chronic systemic disease. Hence; we planned the present study to assess the prognosis of hip fracture elderly patients when grouped on the basis of age groups.

Material & Methods: The present study included assessment of 225 patients who were admitted with the chief complaint of hip fracture. Assessment of the patients post-surgically was done. The patient rests for 2 days after surgery. Standing and walking training was conducted as long as the pain was tolerated. All the patients were classified into four study groups on the basis of age. Group I to IV included patients of age group of 63 to 72 years, 72 to 82 years, 82 to 92 years and 92 years and above respectively. The performance status at admission as well as functional and survival outcome at discharge were investigated and compared among four groups. All the results were analyzed by SPSS software.

Results: Significant results were obtained while comparing the distribution of males among different group of patients divided on the basis of age. Among group I and group II patients, 90.2 and 88.9 percent of the patient had ambulation prior to hip fracture respectively. 30.5, 44.8, 58.6 and 62.7 percent of the patients in the group I, II, III and IV respectively had anaemia. Significant results were obtained while comparing the dementia among patients of different groups.

Conclusion: For better functional results, active surgery and rehabilitation should be done even in cases of elderly patients.

Key words: Age-group, Fracture, Hip, Prognosis.

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INTRODUCTION

According to the data of various countries, in relation to both number and population, the toll of elderly population has reached a high record levels.[1] Accompanying this trend, the number of hip fractures also increased and the number of elderly patients with impaired walking ability or becoming bed-ridden after treatment is anticipated to increase.[2] Hip fracture is one of the common fractures reported among both the young and elderly population in the recent time. Approximately 60 to 80 percent of the patients with hip fractures have been reported to be ambulatory at discharge.[3] The factors influencing walking ability after treatment include age, pre-injury walking ability, status of dementia, and status of chronic systemic disease.[4]

As investigated by previous authors, various factors that contributed to surgical delay led to a conclusion that the presence of various preoperative medical conditions effect the surgical delay of the hip features.[5] Arinzon et al. compared the young elderly aged and the old-old elderly with hip fractures and found that the old-old elderly patients were more functional-dependent before fracture, had more comorbid diseases and had malnutrition as shown by low haemoglobin and serum albumin levels, and their functional outcome was poor.[6] However, past literature quotes only minimal studies for assessment of prognostic factors of hip fracture of various groups of elderly patients.[7] Hence; we planned the present study to assess the prognosis of hip fracture elderly patients when grouped on the basis of age groups.

MATERIALS & METHODS

The present study was conducted in the Department of Orthopaedics, Mata Gujri Memorial Medical College, Kishanganj, Bihar (India) and included assessment of 225 patients who were admitted with the chief complaint of hip fracture. All the patients were of age of 63 years and above. Ethical approval was taken

from the institutional ethical committee and informed consent was obtained after explaining the entire research protocol. Garden classification and Evans classification were used for the classification of femoral neck fractures and trochanteric fractures by Evans classification. Open reduction and internal fixation procedures were used for the surgical treatment of the hip fractures.[7]

Assessment of the patients post-surgically was done. The patients were advised rest for 2 days after surgery. On the third day, wheelchair usage was commenced and muscle strengthening and joint range of motion training were started at the rehabilitation room. From day 7 after surgery, walking training with partial weight-bearing was started. For impacted and non-displaced neck, after the pain was relieved by bed rest for 3-5 days after injury, wheelchair usage was commenced and standing and walking training was started at the rehabilitation room. Weight-bearing was started 5 weeks after injury. For displaced neck of femur, union was not expected and after several days of indirect traction, wheelchair usage was commenced. Standing and walking training was conducted as long as the pain was tolerated. All the patients were classified into four study groups on the basis of age. Group I, group II, group III and group IV included patients of age group of 63 to 72 years, 72 to 82 years, 82 to 92 years and 92 years and above respectively. The performance status at admission as well as functional and survival outcome at discharge were investigated and compared among four groups. All the results were analyzed by SPSS software. Chi-square test and Mann-Whitney test was used for the assessment of level of significance. P-value of less than 0.05 was regarded as significant.

Table 1: Details of the hip fracture patients

Parameter	Group I (%)	Group II (%)	Group II (%)	Group IV (%)	p-value
Males	33.2	25.2	19.3	14.2	0.02*
Ambulation prior to fracture	90.2	88.9	75.1	59.2	0.01*
Dementia	11.2	41.8	54.8	53.1	0.02*
Femoral neck fracture	50.2	42.8	38.6	28.3	0.65
Anaemia	30.5	44.8	58.6	62.7	0.01*
Chronic systemic disease	46.2	66.1	63.1	40.2	0..81

*: Significant

Graph 1: Details of the hip fracture patients

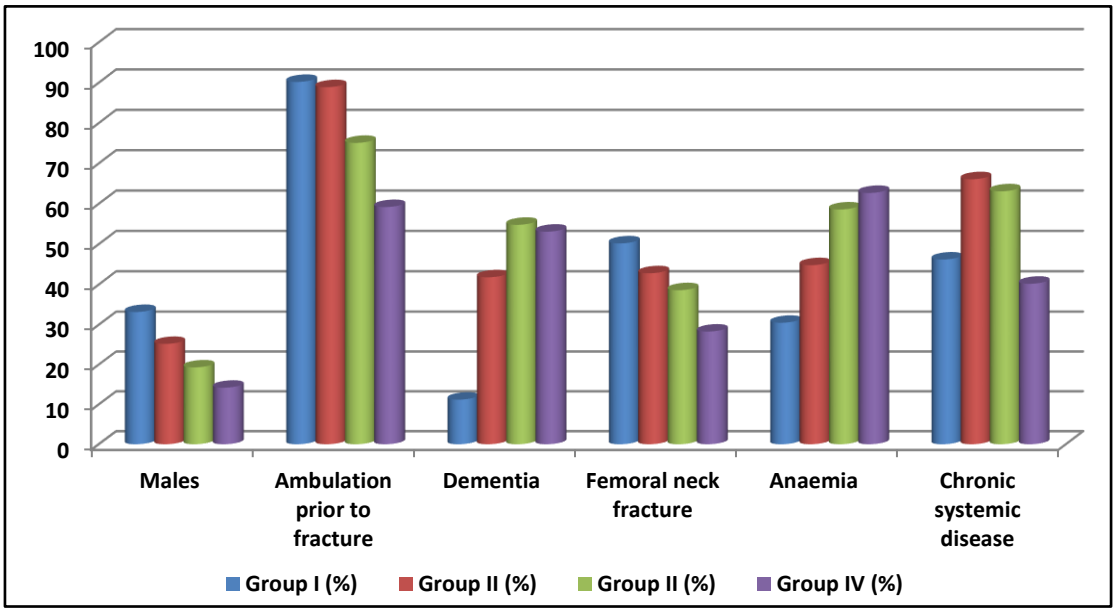

Table 2: In-hospital details of hip fracture patients

Parameter	Group I	Group II	Group II	Group IV	p-value
▪ **% of patients undergoing surgical treatment**	85.2	91.5	89.4	86.4	0.12
▪ **Mean days of duration between admission and discharge**	72.1	64.9	66.2	47.8	0.52

*: Significant

RESULTS

Table 1 and Graph 1 show the details of the hip fracture patients. Among the group I, II, III and IV patients 33.2, 25.2, 19.3 and 14.2 percent of patients were males respectively. Significant results were obtained while comparing the distribution of males among different group of patients divided on the basis of age. Among group I and group II patients, 90.2 and 88.9 percent of the patient had ambulation prior to hip fracture respectively. As far as anaemia was concerned, 30.5, 44.8, 58.6 and 62.7 percent of the patients in the group I, II, III and IV respectively had anaemia. Significant results were obtained while comparing the dementia among patients of different groups. Table 2 shows the in-hospital details of hip fracture patients. Percentage of patients undergoing surgical treatment among group I, II, III and IV patients were 85.2,

91.5, 89.4 and 86.4 respectively. While comparing the mean days of duration between admission and discharge, non-significant results were obtained.

DISCUSSION

An increase in the incidence of hip fracture has been associated with the advancing age, which is also recognised as a causative factor for osteoporosis.[8] Among bedridden patients, high frequency and incidence of occurrence of hip fracture commonly occurs in patients and is associated with a lowered prognosis of survival.[9] Prevention and treatment of hip fracture have therefore, become topical and many reports have described factors that affect the functional prognosis after treatment for hip fracture.[10, 11] It is necessary for the assessment of various pro-surgical factors and age for predicting the prognosis of hip fracture even including the functional rehabilitation of the patients. However, there are few reports on tools or methods for such comprehensive assessment, and no standard approach has been established.[12, 13] Hence; we planned the present study to assess the prognosis of hip fracture in elderly patients when grouped on the basis of age groups.

Lower walking ability was associated with elderly patients with fracture of hip and were more commonly affected by dementia post-surgically. Hagino T et al stratified the elderly patients with hip fracture into age groups and compared the prognosis in various age groups and concluded that walking ability at discharge and survival prognosis worsens as age advanced.[7]

In another study, Hagino T et al reported that the functional outcome in elderly with hip fracture is related to age at admission, dementia, and anemia.[14] The factors influencing ambulation prognosis after hip fracture in the elderly patient were studied in another study and authors revealed that factors significantly affecting walking ability at discharge were age, dementia, residence before injury, anaemia, electrolyte abnormality, abnormal chest X-ray and chronic systemic disease. Each patient was scored on the basis of these factors, and the total was used as the predictive score. The mean score was significantly higher in the non-ambulatory group. Thus, it is possible to predict ambulation prognosis after hip fracture using our scoring system at the time of admission.[15] Tonetti J et al highlighted the factors influencing vital and functional prognosis at 2.5 years of elderly people being treated for a proximal femoral fracture and concluded that therapeutic choices can only be guided by assessments of patients vital and functional prognosis.[16]

CONCLUSION

From the results, the authors concluded that for better functional results, active surgery and rehabilitation should be done even in cases of elderly patients. However, future studies are recommended.

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