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A comparative study of assessment of prognosis of hip fracture patients of various age groups at a tertiary care teaching hospital

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Abstract

Background: Over the past few decades, there had been a decline in the incidence of hip fractures, although there has been an exponential rise in the total number of fractures. Every year, it has been observed that approximately four percent rise occurs in the relative risk of mortality among elderly patients. Hence; we undertook the present study to assess the occurrence of hip fractures in patients of various age groups.

Materials & Methods: The present study included assessment the frequency of occurrence of 200 patients with hip fractures in various age groups. Out of 200 patients, 40 were males and 160 were females. The mean age of patients with hip fractures was 79.2 years. Out of 200, 85 cases were of femoral neck fractures and 115 cases were of trochanteric fractures. Classification of femoral neck fractures was done bases on the classification of Garden and classification of trochanteric fractures was done based on classification of Evans. Classification of all the subjects at the time of injury was done into following groups: Group I: Subjects between age group of 64 to 75 years, Group II: Subjects between age group of 76 to 85 years, Group III: Subjects between age group of 86 to 95 years, and Group IV: Subjects with age of 96 years and above. Comparison was done in between these groups in terms of performance status at the time of admission, functional outcome and survival outcome. All the results were analysed by SPSS software.

Results: Significant difference was obtained while comparing number of patients affected with dementia and anaemia in all the study groups. Number of males in group I, II, III and IV were 8, 14, 15 and 3 respectively. On comparing the ambulation prognosis in between the ambulatory and non- ambulatory patients in all the study groups, we observed statistically significant results.

Conclusion: For achievement of better and favourable prognosis in hip fracture patients, early ambulation should be carried.

Keywords: age, fracture, hip

Introduction

One of the major public concerns is the occurrence of hip fractures in geriatric patients ^[1]. Over the past few decades, there had been a decline in the incidence of hip fractures, although there has been an exponential rise in the total number of fractures ^[2-4]. Reports from the past literature quotes that that in geriatric patients, more than 80 percent of the total hip fractures occur ^[5, 6] Significant morbidity and mortality is associated with hip fractures. At the same time, these hip fractures also cause significant amount of financial burden. Every year, it has been observed that approximately four percent rise occurs in the relative risk of mortality among elderly patients ^[7] Hence; we undertook the present study to assess the occurrence of hip fractures in patients of various age groups.

Materials & Methods

The present study was conducted to assess the frequency of occurrence of 200 patients with hip fractures in various age groups. Out of 200 patients, 40 were males and 160 were females. The mean age of patients with hip fractures was 79.2 years. Out of 200, 85 cases were of femoral neck fractures and 115 cases were of trochanteric fractures. Classification of femoral neck fractures was done bases on the classification of Garden and classification of trochanteric

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fractures was done based on classification of Evans [8]. Garden I and II stages consisted of 38 patients and included patients with impacted and non-displaced fractures. Garden III and IV stages consisted of 47 patients and included patients with displaced neck fractures. Evans I and II consisted of 50 cases and included patients with stable trochanteric while Evans III and IV included 65 subjects and consisted of unstable trochanteric. Surgery was carried out in cases where ever indicated. Follow-up records of the patients were maintained. Classification of all the subjects at the time of injury was done into following groups:

- Group I: Subjects between age group of 64 to 75 years,
- Group II: Subjects between age group of 76 to 85 years,
- Group III: Subjects between age group of 86 to 95 years, and
- Group IV: Subjects with age of 96 years and above.

Group I, II, III and IV consisted of 40, 70, 75 and 15 patients respectively. Comparison was done in between these groups in terms of performance status at the time of admission, functional outcome and survival outcome. All the results were analysed by SPSS software. Chi-square test, student t test, Mann Whitney U test and uni-variate analysis were used for the assessment of level of significance.

Results

We observed significant difference while comparing number of patients affected with dementia and anemia in all the study groups (P-value < 0.05) (Table 1). Number of males in group I, II, III and IV were 8, 14, 15 and 3 respectively. Number of females in group I, II, III and IV were 32, 56, 50 and 12 respectively. Non-significant results were obtained while comparing the number of patients with femoral neck fractures in all the study groups (P-value > 0.05). On comparing the ambulation prognosis in between the ambulatory and non-ambulatory patients in all the study groups, we observed statistically significant results (P-value < 0.05) (Table 2).

Discussion

The propelling period of society is joined by an expansion in the occurrence of hip crack, which is likewise perceived as a causative element for osteoporosis [9]. Crack of the hip in this populace most ordinarily happens in patients who have turned out to be confined to bed and is related with a brought down anticipation of survival [10]. Anticipation and treatment of hip crack have subsequently, turned out to be topical and many reports have portrayed components that influence the practical

guess after treatment for hip break [11].

In the present study, we observed significant results while comparing the ambulation prognosis between ambulatory patients and non-ambulatory patients in all the study groups. Hagino T *et al.* stratified elderly patients with hip fracture into age groups and compared the prognosis in various age groups and reported that walking ability at discharge and survival prognosis worsened as age advanced. On the other hand, since surgical cases achieved better walking ability than conservatively treated cases, efforts should be made to achieve better functional prognosis even in the old-olds, including surgery together with early ambulation and rehabilitation [8]. Hagino T *et al.* in another study examined the relationship between hemoglobin level at admission and walking ability, as well as survival outcome at discharge. For walking ability at discharge, 92 of 128 patients without anemia were ambulatory compared with only 130 of 266 patients with anemia, with a significant difference between the two groups [12]. Another study investigated the factors influencing ambulation prognosis after hip fracture in the elderly patient and examined whether it is possible to predict the ambulation status upon hospital discharge at the time of admission. 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 the above factors (1=yes, 0=no), and the total was used as the predictive score. The mean score was significantly higher ($p < 0.0005$) in the non-ambulatory group. Hence authors suggested that it is possible to predict ambulation prognosis after hip fracture using scoring system at the time of admission [1]. Arinzon Z *et al.* studied functional outcome after rehabilitation for hip fracture in old-old elderly (85 years and older) and compared it to young elderly (65-74 years) community-dwelling patients. The mean duration of rehabilitation stay was significantly longer in old-old elderly patients. On discharge old-old elderly patients more suffer from pain and difference between the groups according to the laboratory and to the cognitive data increased. Thus, the study concluded that age per se is indicator of frailty and determinate functional recovery after hip fracture [13].

Conclusion

From the above results, the authors conclude that for achievement of better and favourable prognosis, early ambulation should be carried. However, future studies are recommended.

Table 1: We observed significant difference while comparing number of patients affected with dementia and anemia in all the study groups (P-value < 0.05)

| Parameter | Group I (N= 40) | Group II (N= 70) | Group III (N= 75) | Group IV (N= 15) | P-value |
|----------------------------|-----------------|------------------|-------------------|------------------|---------|
| Males | 8 | 14 | 15 | 3 | 0.41 |
| Females | 32 | 56 | 50 | 12 | |
| Femoral neck fracture | 14 | 29 | 33 | 9 | 0.60 |
| Dementia | 5 | 27 | 40 | 7 | 0.01* |
| Anaemia | 14 | 30 | 38 | 9 | 0.02* |
| Abnormality in electrolyte | 8 | 20 | 24 | 6 | 0.57 |

*: Significant

Table 2: Comparison of ambulation prognosis at discharge

| Ambulation prognosis | Group I (N= 40) | Group II (N= 70) | Group III (N= 75) | Group IV (N= 15) | P-value |
|----------------------|-----------------|------------------|-------------------|------------------|---------|
| Ambulatory | 32 | 49 | 44 | 6 | 0.02* |
| Non-ambulatory | 8 | 21 | 31 | 8 | |

*: Significant

Acknowledgement -nil

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