

ORIGINAL ARTICLE

Comparison of Characteristic of Hip Bone Fracture among Different Age Groups- A Clinical Study

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ABSTRACT:

Background: Hip fractures are very common among elders. The number of elderly aged 65 years or above was 27.44 million in 2010, occupying 21.5% of the total population. The present study was conducted to assess the characteristic of hip fractures in different age groups. **Materials & Methods:** The present study was conducted on 260 patients of both gender with hip fractures. Patients were divided into four age groups. Group I, group II, group III, group IV and group V. Characteristics such as the performance status at admission as well as functional and survival outcome at discharge were investigated and compared. **Results:** Out of 260 patients, males were 140 and females were 120. The difference was non- significant (P- 0.51). Age group I (65- 74 years) had 40 patients, group II (75-84 years) had 102 patients, group III (85-94 years) had 108 patients and group IV (>95 years) had 10 patients. The difference was significant (P- 0.01). Ambulatory prior to fracture, femoral neck fracture, dementia, anemia, abnormal electrolyte, lung function and abnormal ECG was statistical significant in all groups. The number of operative treatment in group I was 34, in group II was 95, in group III was 98, in group IV was 8. The difference was significant (P- 0.01). Duration between admission and discharge was 72.3 ± 40.2 days, 62.1 ± 30.4 days, 65.6 ± 43.2 days and 49.1 ± 46.4 days in group I, group II, group III and group IV respectively. The difference was non- significant (P- 0.07). Number of deaths was 0, 1, 6 and 1 in group I, group II, group III and group IV respectively. The difference was significant (P- 0.05). **Conclusion:** Hip fractures are common among old people. The incidence of fracture is increasing significantly. Anemia and dementia are characteristic features in patients with hip fracture.

Key words: Anemia, Elders, Hip fractures.

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INTRODUCTION

Hip fractures are very common among elders. The number of elderly aged 65 years or above was 27.44 million in 2010, occupying 21.5% of the total population. The proportion of the elderly population continues to rise and is expected to reach 30% in 2025.¹ Accompanying this trend, the number of hip fractures also increases and the number of elderly patients with impaired walking ability or becoming bed-ridden after treatment is anticipated to increase. Potential complications vary with the degree of trauma energy and include open fractures requiring coverage procedures, compartment syndrome and neurovascular injury. Associated injuries include cruciate and collateral ligament injuries and meniscal tears. Complex fractures include significant articular comminution and depression and open or closed soft tissue injuries.²

There are no specific guidelines for the management of proximal hip fracture. Patient age and the quality of fracture reduction have been reported as risk factors for failure of internal fixation. Biomechanical studies have suggested that placement of a screw strengthens the construct but an optimal position for screw placement has not been proven.³ Several radiographs are required apart from thorough clinical examination. It includes plain film radiography and a Computerized Tomographic (CT) scan. Nowadays, CT scan is the choice and now considered as the 'gold standard' in both evaluation and treatment planning. Management of fracture is controversial. Historically closed reduction was the method of choice for management of all hip fractures.⁴ Elderly due to reduction in physical exercise and osteoporosis are more like to encounter fractures of bone. Hip joint is weight bearing joint and in obese subjects fractures are more likely to occur. With advancing age, the

prevalence of fractures increases. Therefore, in conducting treatment for hip fractures, it is important to know the patient characteristics and the prognosis in different age groups of the elderly population.⁵ The present study was conducted to assess the characteristic of hip fractures in different age groups.

MATERIALS & METHODS

The present study was conducted in the department of orthopedics. It included 260 patients of both gender with hip fractures. All were informed regarding the study and written

consent was obtained. Ethical clearance was taken from institutional ethical committee.

General information such as name, age, gender etc. was noted. Patients were divided into four age groups. Group I, group II, group III, group IV and group V.

The performance status at admission as well as functional and survival outcome at discharge were investigated and compared. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

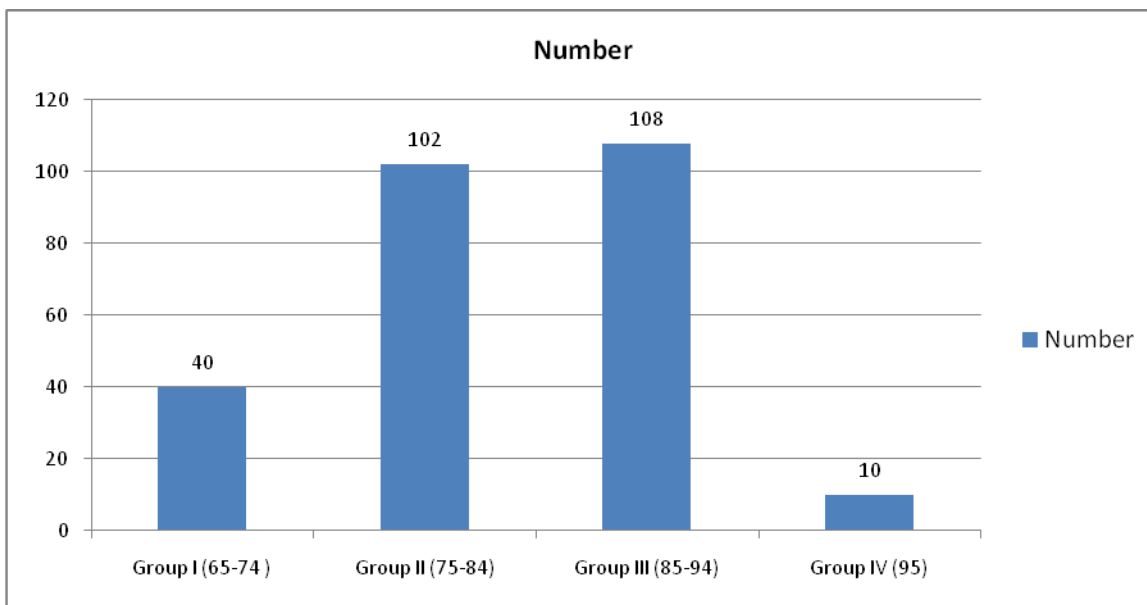
RESULTS

Table I Distribution of patients

Total- 260		
Male	Female	P value
140	120	0.51

Table I shows that out of 260 patients, males were 140 and females were 120. The difference was non- significant (P- 0.51).

Graph I Age distribution of patients



Graph I shows that age group I (65- 74 years) had 40 patients, group II (75-84 years) had 102 patients, group III (85-94 years) had 108 patients and group IV (>95 years) had 10 patients. The difference was significant (P- 0.01).

Table II Characteristic of patients

Parameters	Group I	Group II	Group III	Group IV	P value
Ambulatory prior to fracture	35	90	92	5	0.01
Femoral neck fracture	20	40	42	2	0.001
Dementia	4	38	54	6	0.02
Anemia	12	45	62	6	0.021
Abnormal electrolyte	8	26	30	4	0.05
Abnormal lung function	2	11	13	3	0.04
Abnormal ECG	8	35	40	7	0.001

Table II shows that ambulatory prior to fracture, femoral neck fracture, dementia, anemia, abnormal electrolyte, lung function and abnormal ECG was statistical significant in all groups.

Table III In- hospital data in patients

Parameters	Group I	Group II	Group III	Group IV	P value
Number of operative treatment	34	95	98	8	0.01
Duration between admission and discharge (days, Mean \pm SD)	72.3 \pm 40.2	62.1 \pm 30.4	65.6 \pm 43.2	49.1 \pm 46.4	0.07
Death	0	1	6	1	0.05

Table II shows that number of operative treatment in group I was 34, in group II was 95, in group III was 98, in group IV was 8. The difference was significant (P- 0.01). Duration between admission and discharge was 72.3 \pm 40.2 days, 62.1 \pm 30.4 days, 65.6 \pm 43.2 days and 49.1 \pm 46.4 days in group I, group II, group III and group IV respectively. The difference was non- significant (P- 0.07). Number of deaths was 0, 1, 6 and 1 in group I, group II, group III and group IV respectively. The difference was significant (P- 0.05).

DISCUSSION

Fractures are commonly seen following road accidents, fall from building or tree, fight etc. Long bone fractures are commonly seen during road side accidents. Fracture of the hip bone contributes significant of all fractures.

NICE guidance suggests that displaced fractures should be treated with an arthroplasty. Primary 10-15% dislocation rate are seen with arthroplasty. According to SIGN guidelines "older" or less fit patients should be treated with an arthroplast while "young" patients or those with undisplaced fractures should undergo internal fixation. Nonunion and avascular necrosis is among the complication following internal fixation which results into reintervention rate. Some authors suggested that hemiarthroplasty have a better functional outcome whereas other studies have shown lower mortality with that internal fixation.⁶

In this study, out of 260 patients, males were 140 and females were 120. We found that maximum patients were seen in age group 85-94 years (108) followed by age group 75-84 years (102), age group 65- 74 years (40) and group IV (>95 years) had 10 patients. This is in agreement with Holt.⁷

We found that there was significant difference between all groups regarding femoral neck fracture, dementia, anemia, abnormal electrolyte, lung function and abnormal ECG. This is similar to Kitamura et al.⁸ Thorngren et al.⁹ identified the risk factors associated with mortality following hip fracture to be male sex, older age, high American Academy of Anesthesiology (ASA) grade and dementia.

We found that duration between admission and discharge was more in group I (72.3 \pm 40.2 days) followed by group III (65.6 \pm 43.2 days), group I (62.1 \pm 30.4 days) and group

IV (49.1 \pm 46.4 days). Maximum number of deaths occurred in group III. This is in agreement with Hasegawa et al.¹⁰ Arinzon et al.¹¹ compared the young elderly aged 65-74 years and the elderly aged 85 years and older with hip fractures. Their study showed that the elderly patients were more functional-dependent before fracture, had more comorbid diseases and had malnutrition as shown by low hemoglobin and serum albumin levels, and their functional outcome was poor. We have also reported that the status of anemia and dementia at admission is closely related to functional outcome.

CONCLUSION

Hip fractures are common among old people. The incidence of fracture is increasing significantly. Anemia and dementia are characteristic features in patients with hip fracture.

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