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To determine peri-operative morbidity in Trochanteric Fractures in elderly patients (60 years and above) visiting Department of Orthopedics at Dr RPGMC Tanda.

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Abstract

Background: In elderly, trochanteric fractures are frequent and typically result from mild to moderate trauma in osteoporotic bones while in young adults these fractures are generally due to high energy trauma such as road side accidents.

Methods: The present study was conducted in elderly patients with trochanteric fractures (age 60 years and above) presenting to the Department of Orthopaedics, Dr. RPGMC Kangra at Tanda. All cases presenting to the department and fulfilling the inclusion criteria were studied for three months period from the day of surgery. All cases fulfilling the inclusion criteria who were operated over the period of one year from the date of start of study were included.

Results: A patients, general condition was fair for 5 patients and average for 13 patients. Out of 158 group B patients, 105 and 53 patients had general condition fair and average respectively. Our study observed that general condition was significantly worse in group A patients (P=0.003).

Conclusion: The better management of co-morbid conditions and peri-operative care of elderly patients as a strategy to reduce post-traumatic peri-operative morbidity in elderly patients with trochanteric fractures

Keywords: Morbidity, Trochanteric fracture, Elderly.

Introduction

The trochanteric fractures pose a number of management dilemmas depending on the age, sex, nutritional status, comorbidities, status of the bones and type of fractures. Advanced age and associated comorbidities are two decisive factors of mortality secondary to trochanteric fracture. Basal energy requirement of a traumatized patient is increased from 30% to 50% of normal and their elderly patients with trochanteric fracture are more likely to be malnourished on admission when compared to the age-matched general population.[1,2]

Poor nutritional status is known to be both a common causative factor of trochanteric fracture and predictor of excess mortality following surgical intervention. Many methods including anthropometry, the mini nutritional assessment, nutrition-related blood parameters and dietary analysis are used for nutritional status assessment in clinics. Serum albumin and total lymphocyte count are two of the most important blood parameters for nutritional status and have been recognized as prognostic factors of trochanteric fracture.[3]

Hip fractures in the elderly lead to functional decline and a diminished quality of life. Furthermore, these fractures are associated with an in-hospital mortality rate of 7–14%, reaching 14–36% within 1 year of surgery. Hip fractures are also complicated by a 0–49% need for revision surgery, which is influenced heavily by fracture characteristics and surgical interventions.[4]

Material and Methods

The present study was conducted in elderly patients with trochanteric fractures (age 60 years and above) presenting to the Department of Orthopaedics, Dr. RPGMC Kangra at Tanda. All cases presenting to the department and fulfilling the inclusion criteria were studied for three months period from the day of surgery. All cases fulfilling the inclusion criteria who were operated over the period of one year from the date of start of study were included.

Ethical consideration

The study was initiated following approval from Institutional Ethics Committee (IEC). The patients were given the right to abstain from participation in the study or to withdraw at any time of the study without reprisal.

Inclusion criteria

- All patients of trochanteric fracture 60 years and above.
- All patients meeting the exclusion criteria were excluded from the study.

Exclusion criteria

- Concomitant trauma involving other systems
- Associated fracture of the pelvis
- Bilateral hip fracture
- Pathological fracture
- Did not give consent to participate in the study

After a detailed history, patients were clinically evaluated at the time of admission. Demographic data of the patients such as age, sex, pre-existing co-morbidities, bed sores, type of fracture and degree of osteoporosis were recorded.

Statistical analysis

The data were presented as frequency, percentages, mean±SD, median and interquartile range wherever applicable. Normality of distribution was evaluated using Shapiro-Wilk test. Student t-test was used to compare continuous variables with normal distribution. Chi-square test was used using categorical variables. Skewed data between 2 groups were compared using Mann Whitney U test. P value <0.05

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was considered significant. Statistical analysis was performed using SPSS v21.

Results

The present study was aimed to evaluate perioperative morbidity in trochanteric fractures in elderly patients [60 years and above] in Department of Orthopaedics, Dr RPGMC Kangra at Tanda over the period of one year. A total of 176 patients with trochanteric fractures were included in the study.

Group-A- Not survived patients

Group-B- Survived patients

Results of the study have been described below:

Table 1: Comparison of anthropometry characteristics on the basis of perioperative mortality (N=176)

	BMI (Kg/m²)	Group A (n=18)	Group B (n=158)	P Value
BMI	Mean±SD	20.33±2.23	20.88±2.39	0.353#
	Median	19.79	21.23	
	IQR	18.47, 21.62	19.72, 22.14	
Arm Muscle Circumference	Mean±SD	20.67±1.78	21.30±1.82	0.162#
	Median	20.0	21.0	
	IQR	19.0, 22.0	20.0, 23.0	

#Student t-test

Among group A patients, 7 patients had no co-morbidities. The most common co-morbidity in group A patients was hypertension followed by diabetes.

Table 2: Co-morbidities (N=176)

	Group A (n=18)	Group B (n=158)	Grand Total
Hypertension	6	25	31
Diabetes	2	16	18
COPD	0	3	3
TB	0	6	6
Alcohol dependence	0	1	1
CAD	0	3	3
CKS	0	1	1
Bed Sore	2	14	16
RA	0	4	4
Bipolar hemiarthroplasty	0	2	2
Kyphoscoliosis	0	1	1
Hepatitis B	1	0	1
Delirium	0	1	1
Scoliosis	0	1	1
No Comorbidity	7	80	87

A patients, general condition was fair for 5 patients and average for 13 patients. Out of 158 group B patients, 105 and 53 patients had general condition fair and average respectively. Our study observed that general condition was significantly worse in group A patients (P=0.003).

Table 3: Comparison of general condition on the basis of perioperative mortality (N=176)

	Group A (n=18)	Group B (n=158)	P Value
Fair	5	105	0.003
Average	13	53	

Discussion

The present study was conducted in patients with trochanteric fractures (age 60 years and above) presenting to the Department of Orthopaedics, Dr. RPGMC Kangra at Tanda. Excess mortality after hip fracture may be linked to complications following the fracture, such as pulmonary embolism, infections, and heart failure. Factors associated with the risk of falling and sustaining osteoporotic fractures may also be responsible for the excess mortality. Excess mortality after fracture may be due to the individual characteristics of the person sustaining the hip fracture;

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e.g., low-bone density is associated with increased non-trauma mortality, even without fractures.Haentjens et al.5 performed time-to-event meta-analyses and showed that the relative hazard for all-cause mortality in the first 3 months after a hip fracture was 5.75 in women and 7.95 in men. The majority of our population was operated within 24 h (75%) or 36 h (90%). This is consistent with the current recommendations for the management of hip fractures in many settings, although we still lack an international consensus. Obviously, several factors can affect the postoperative mortality, but the time to surgery is one of the most debated ones.Moja et al.6 described in a meta-analysis that a delay to surgery was associated with a significant increase in the risk of death and pressure sores, and recommended that most patients with a hip fracture should be operated within 1 or 2 days. In addition, early fracture fixation and mobilization of these patients decreases the economic burden as it might reduce the overall length of stay, and thus the total cost.7 In our study, time from injury to surgery was statistically not significant in the patients who did not survive.On the contrary, a recent prospective cohort study from Lizaur-Utrilla et al. 2018 including 1234 patients who underwent hip fracture surgery suggested that waiting time for the surgery more than 2 days to stabilize patients with active comorbidities at admission was not associated with higher complication or mortality rate. However, the patients who were delayed to surgery due to organizational reasons had a significant higher rate of postoperative complications and 1-year mortality.8Variables such as increased age, the presence of 2 or more comorbidities, male gender, low values of haemoglobin might be independent predictors of mortality.9 We also observed that presence of more than 2 comorbidities was associated with 90-day mortality. In our study, Hb levels were also significantly lower in the patients who could not survive.In another study by Johnson et al, it has been reported that the Charlson Comorbidity Index shown to be an independent predictor of surgical mortality as well as long-termsurvival. A high CCI score was a predictor of postoperative complications, longer hospital stay, and increased hospital costs incurred following treatment for hip fractures.

Conclusion

The better management of co-morbid conditions and peri-operative care of elderly patients as a strategy to reduce post-traumatic peri-operative morbidity in elderly patients with trochanteric fractures.

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