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Geriatric Fractures: An Experience At a Tertiary Care Hospital

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ABSTRACT

Objective — *To find out demographics, mechanism of injury and bones involved so as to suggest preventive measures in geriatric population.*

Study design — *Retrospective case series.*

Place & Duration of study — *Department of Orthopaedics and Spine Centre, Ghurki Trust Teaching Hospital Lahore, from January 2015 to December 2015.*

Methodology — *This study included all patients of age greater than 50 year of either sex admitted through emergency or OPD having any type fracture. The data were taken from hospital database and included clinical, epidemiological and radiological records. The results were analyzed using SPSS version 17.0.*

Results — *A total of 1215 patients were included in the study. Of these 880 (72.4%) were males and 335 (27.6%) females. Male to females ratio were 1.38:1 with mean age of 56.21±12.603 year. Most of them were between 51-60 year (n=629 - 51.77%). Femoral fractures were the most common and the main mechanism of injury were fall followed by road traffic accidents.*

Conclusions — *Femoral neck fractures were the most common fractures and mostly females were involved. Fall was the main mechanism of injury.*

Key words — *Osteoporosis, Fractures, Epidemiology, Geriatric.*

INTRODUCTION:

Fractures carries significant financial burden and morbidity to the affected individual. In older adults with fractures grave consequences can occur due to many risk factors involved. This may lead to mortality. Osteoporosis is a well established risk factor and a major health problem, especially in elderly populations. It is associated with fragile bones thus increasing the risk of fracture, specially involving femur and radius.[1] At 50 years of age, 4 in 10 women will experience a hip, vertebral or forearm fracture in their remaining lifetime, and are more likely to die from complications of fracture than from breast cancer. [2] Although weakening of the bone may be the cause of fractures that geriatric patients suffer after a fall from standing height; but the cause of fall is actually the loss of muscle mass and frailty that occurs due to age related changes and malnutrition.[3] Fractures that are most commonly associated with osteoporosis include those of the hip, the distal forearm and the vertebrae. [4]

Incidence of osteoporosis is increases with advancing age.[5] In United States, the number of osteoporosis-related fractures was estimated to exceed 2 million in 2005.[6] About one third of community-dwelling persons aged 65 year and older will fall each year and the incidence of falls increases steadily with the age.[7] Vertebral fractures show a modest increase with age and are again more common in women than men.[8]

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There is limited data available on epidemiology of geriatrics fractures in our population. The aim of this study was to report the burden of geriatric fractures and make recommendations for its prevention.

METHODOLOGY:

This retrospective study was carried out at Ghurki Trust Teaching Hospital, Lahore. The data had been collected from hospital database after hospital ethical committee approval and permission from concerned department. The data spanned over one year from January 2015 to December 2015. All patients of either sex and age, equal or greater than 50 year, admitted either through OPD or emergency department at Orthopaedics and Spine unit, were included in the study. The data included age of the patient, sex, mechanism of injury and bones involved. Other information recorded for making diagnosis of osteoporosis included any history of prior fragility fracture, smoking, use of systemic corticosteroids and any other musculoskeletal condition. Data were entered into SPSS version 17.0. Frequencies and percentages were calculated. Data presented in tables and graphs.

RESULTS:

A total of 1215 patients were included in the study. There were 880 (72.4%) males and 335 (27.6%) females .Male to females ratio were 1.38:1 with mean age of 56.21 ± 12.603 year. Most of the patients were between 51-60 year of age (table I).

Table I: Age Distribution

Age in Year	Frequency (n)	Percentage (%)
51-60	629	51.77
61-70	318	26.17
71-80	211	17.36
>80	57	4.70
Total	1215	100

In 609 (50.12%) patients no co-morbid or risk factor was found. Diabetes mellitus was present in 99 (8.1%) of patients. Other associated conditions are given in table II.

The fall was the main mechanism of injury in our study and found in 729(60%) patients. Road traffic accidents occurred in 466 (38.4%), assaults in 15(1.2%) and other mechanism of injury in 5(0.4%) patients.

The fracture neck of femur were found in 379 (31.2%) patients, per trochanteric fracture of femur in 148 (12.2%), shaft of femur in 60 (4.9%), tibial fracture in 162 (13.3%), humerus fracture in 192 (15.8%), radius and ulna in 111 (9.1%), spine fracture in 62 (5.1%), dislocations in 60 (4.9%) and other bones fractured in 41 (3.4%) patients.

Table II: Co-morbidity and Associated Risk Factors

Factors	Frequency (n)	Percentage
Diabetes Mellitus	99	8.16
HTN*/IHD*	84	6.91
Viral Hepatitis	17	1.4
Use of steroids/RA*	31	2.55
Smoking or other addiction	198	16.30
Family history of osteoporosis	110	9.05
Prior fracture	67	5.51
Total	1215	100

*; IHD Ischemic heart disease, HTN Hypertension, RA Rheumatoid Arthritis.

DISCUSSION:

Fractures, due to injuries are important public health burden. Falls are main cause of injury among elderly people and a major public health problem.[9,10,11] In our study like previous studies mentioned, the fall were the major reason of fractures followed by the road traffic accidents. The assaults and some other causes like crushing machine injury etc are less common mode of trauma. Most of these falls are associated with one or more identifiable risk factors (e.g. weakness, unsteady gait, confusion and use of certain medications). Research has shown that attention to these risk factors can significantly reduce rate of fall. Hip fractures were most commonly seen in elderly in our study. Similar findings were found in many other studies.[12,13]

Among the hip fractures the femoral neck fractures were the most common fractures.[14,15] Hip fractures occur all over the world, mostly in Western countries, but it is expected that there will be an increase in other countries because of demographic changes.[16] Patients with impaired cognitive status are at increased risk of femoral neck fracture. The relative hip fracture risk was seven times higher for women and 12 times higher for men with mental disorders.[9] It is predicted that the worldwide incidence of hip fractures will grow to 6.3 million yearly by 2050.[17] The study conducted in USA found that the most

common fractures were vertebral followed by wrist and then hip.[6]

In a study it was reported that 50% of the geriatrics patients had hypertension and 30% diabetes mellitus.[22] However in our study the diabetes mellitus was the main co morbidity followed by the hypertension and ischemic heart disease.

CONCLUSIONS:

Fractures occurred most commonly in females. Femur was fractured more than any other bone. Fall was the main mechanism of injury.

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