ORIGINAL ARTICLE

Evaluation of Risk Factors of Hip Fractures; A Retrospective Study

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ABSTRACT

Back ground: Hip fractures are breaks in the neck and intertrochanteric region. These are serious injuries that most often occur in elderly persons and create a major social, psychological, economical and public health problem in this old age. Most hip fractures require surgery, hospitalization, and extended rehabilitation. This puts lot of economical and social burden on the public and government sectors.

Objectives: To assess the risk factors of hip fractures among the patients of all age groups presenting for cognitive assistance.

Methods: This study was conducted among the patients admitted in Orthopaedic Department of Sheikh Zayed Medical College Rahim Yar khan. All the patients regardless of age, sex and educational level admitted with hip fractures during the period of January 2013 to December 2013 were included in the study.

Results: There were 133 patients admitted with hip injuries. Among these 133 patients that were admitted with hip fractures, there were 45(33.8%) female and 88(66.2%) male, the mean age of the patients was 50.64 years and the Standard Deviation was 19.94 years. The lower limit of age was 3 years and upper limit was 100 years. The majority of the patients 63.91% were in between the age group of 40 to 80 years.

Conclusion: The hip fractures increases as the age advances. This temporal rise can be reduced with nutritional supplements for the prevention of osteoporosis. The prevention of osteoporoses will reduce the hip fractures that will ultimately alleviate the disability and burden of the disease.

Key Words: Hip fracture, elderly persons, health problem.

INTRODUCTION

Elderly people particularly females suffer from osteoporosis and hip fractures are very common. In tertiary care hospitals hip fractures are most common reason for admissions and lot of expenses are being spent by public as well as governments. In United Kingdom yearly about 75000 patients with hip fractures are admitted and treated. By 2050 this number of patients is projected to be doubled considering the aging population in United Kingdom[1].The number of hip fractures is going to rise as the elderly population increases[2].

Children suffer from hip fractures less commonly as compared with adults as their bones are more plastic and muscle mass is less. Less than 1%.of the paediatric fractures occur in the hip area. Hip fracture in children often results from high energy trauma but in adults the hip fractures usually results from minor trauma. In children the hip fractures are difficult to treat and manage and avascular necrosis of the femoral head is a grave complication leading to high morbidity[3-4]. Elderly population suffer from hip fractures as a result of fall on the ground or direct blow to the hip area. Some of the diseases for example diabetes mellitus, rheumatoid arthritis, osteoporosis, malignancy, steroid intake, tobacco smoking and alcoholism cause bone weakness leading to insufficiency fractures in the older people[5].

Hip fractures cause lot of social, economical and personal burden to the patient and care takers. The ball and socket joint gives mobility for perineal care and when there is a fracture around hip area that causes difficulty in walking and self care of the elderly population. Although hip fractures are not an orthopaedic emergency but its treatments is urgently desired by the patients and their families. Urgent treatment boosts the psychological impact and prevents the patients from the pulmonary, sedentary and thromboembolic complications[6].

Femoral neck fractures and inter-trochanteric fractures are most common injuries around hip in elderly people. About 90% of the fractures around

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hip fall in these two categories. Stress fractures of proximal femur are very rare in the elderly population but can be a diagnostic dilemma in young active athletes mimicking tendinitis and muscle sbasm[7]. In elderly population osteoporosis in which amount and quality of bone is reduced lead to fragility fractures and create major morbidity. Osteoporosis is a silent killer and hidden until fractures occur[8]. Hip fractures in the elderly population account for major health care expenditure and result in mortality of 20% of the patients above 60 years [9-10]. In underdeveloped countries like Pakistan majority of hip fractures are treated by bone setters.

Osteoporosis and falls in the home are the major risk factors in the elderly population presenting with hip fractures. It is estimated that each year 30 to 60% of the public above 60 years suffer from falls. 90% of the hip fractures in the older people occur due to fall while standing from a sitting place. The life time risk of hip fractures is 17.5% for female and 6% for male[11]. Socio economic status and educational level inversely affects the incidence of hip fracture [12-13]. General medical conditions for example cardiovascular diseases, rheumatic diseases and pulmonary diseases increase the risk of hip fracture in patients above 60 years of age[14]. There is a need to carry out a study to analyse these different risk factors in the population of Pakistan as no such study is available at present. This will help at national, personal, economical, social and international level to prevent the incidence of fractures and reducing the socio economic burden on national resources.

Hence this study was planned to evaluate the risk factors of hip fractures of all age groups particularly in the older people.

METHODS AND SUBJECTS

This study was conducted in Orthopaedic Department of Sheikh Zayed Medical College Rahim Yar khan among the patients admitted for hip fracture during the period of January 2013 to December 2013. All the patients irrespective to age and sex having hip fracture were included in the study. The data regarding age, sex, educational level, socio economic status, side of the hip involved and mode of the injury was retrieved from the department with the help of computer.

A total of 133 patients were included in the study. Patients who died or the patients who were unwilling to be included in the study were excluded. The age was divided in five groups with difference of twenty. Sex was defined as male and female. The education level was defined as illiterate or literate. Patients who were able to read or write some words were considered as literate. The socioeconomic status was defined as low and high. Side of the hip was left and right or both. Mode of injury was road side accident, fall on ground and homicidal.

The mode of operation, operative approach, the implants used and post-operative events including union rate was not part of study. Rehabilitation was also not recorded and needs a separate study to assess different tools used. The consent was retrieved from patients to be included in the study. Permission from ethical committee of the hospital was taken. The data was analyzed using SPSS version 17.

RESULTS

There were total 133 patients admitted in the Orthopaedic Department of Sheikh Zayed Medical College/Hospital Rahim Yar Khan. Among these 133 patients who were admitted for hip fracture, there were 45(33.8%) female and 88(66.2%) male patients. The mean age of the patients was 50.64 years and the Standard Deviation was 19.94 years. The lower limit of age was 3 years and upper limit was 100 years. The majority of the patients 63.91% were in between the age group of 40 to 80 years. The less common number of patients was in extremes of age groups there were, 7.52% below the age of 20 years and 3% above the age of 80 years. The age and sex distribution was analyzed as shown in table - 1

There were 73(54.9%) patients who have got fracture on left hip area and 60(45.1%) patients were of right hip fracture. Among these the acetabular fracture was 2.3%, hip joint dislocation 2.3%, inter trochanteric fracture 39.1%, neck of femur 53.4%, and subtrochanteric fracture 3%. Among female patients 58% got femoral neck fracture while among males 51% got femoral neck fracture while there were 33% of females who got intertrochanteric fracture and 41% males suffered from intertrochanteric fracture. The site of injury involved is shown in table – 2.

Table 1: Age and Sex Comparison (N= 133)

Sr. No.	Age in years	Male	Percentage	Female	Percentage	Cumulative Percentage
1	1-20	6	4.52	4	3.00	7.52
2	21-40	25	18.80	9	6.77	25.57
3	41-60	25	18.80	23	17.29	36.09
4	61-80	28	21.05	9	6.77	27.82
5	80-100	2	1.50	2	1.50	3.00
Grand total		86	64.66	47	35.34	100%

Table 2: Site of injury

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	acetabular fracture	3	2.3	2.3	2.3
	hip joint dislocation	3	2.3	2.3	4.5
	inter trochanteric fracture	51	38.3	38.3	42.9
	neck of femur	71	53.4	53.4	96.2
	pertrochanteric fracture	1	.8	.8	97.0
	subtrochanteric fracture	4	3.0	3.0	100.0
	Total	133	100.0	100.0	

Regarding mode of trauma, among 133 patients 62(46.6%) got injury due to fall, 63(47.4%) due to road traffic accident and 8(6%) due to homicidal injury. This is shown in table – 3

Table 3: Mode of Trauma

		Frequency	Percent	Valid Percent	Cumulative Percent
	History of fall	62	46.6	46.6	46.6
	Homicidal	8	6.0	6.0	52.6
	Road Traffic Accident	63	47.4	47.4	100.0
	Total	133	100.0	100.0	

DISCUSSION

More than one-third of adults ages 65 years and older (about 12 million people) fall each year and got fatal and non fatal injuries.[15] A variety of studies have examined hip fracture rates in different regions of the world. Greater than 10-fold differences have been found, largely on the basis of register studies undertaken on a regional or national level and at different calendar years.[16,17]

We have observed in our study that female have higher tendency of hip fracture. Among female patients 58% got femoral neck fracture while among males 51% got femoral neck fracture. Women are especially vulnerable to hip fractures. According to 2010 data from the National Hospital Discharge Survey, approximately 70% of hip fractures occur in women.[18] More than 95% of hip fractures are caused by falling, most often by falling sideways onto the hip.[19, 20]

It has been revealed in our study that among 133 patients, 62 (46.6%) got injury due to fall, 63(47.4%) due to fall by road traffic accident .As the elderly population grows, the number of hip fractures continues to increase. The elderly have weaker bone and are more likely to fall due to poorer balance. Worldwide, the total number of hip fractures is expected to surpass 6 million by the year 2050, according to data from the US Agency for Healthcare Research and Quality, accounting for 30 percent of all hospitalized patients[21]

In our study, the majority of the patients 63.91% were in between the age group of 40 to 80 years, showing the greater tendency of hip joint fracture with increasing age. Osteoporosis, a disease that makes bones porous, increases a person's risk of sustaining a hip fracture. The National Osteoporosis Foundation estimates that more than 10 million people over age 50 in the

Islamic Republic of Iran have osteoporosis and another 34 million are at risk for the disease.[22]

In this study, the less common number of patients (7.52%) who got hip injuries were below the age of 20 years. It has been observed that femoral neck fractures in young adults are uncommon and often the result of high-energy trauma. They are associated with higher incidences of femoral head osteonecrosis and nonunion.[23]

CONCLUSION

The incidence of the hip fracture increases as the age advances. This temporal rise can be reduced with nutritional supplements for the prevention of osteoporosis. The prevention of osteoporoses will reduce the hip fractures that will ultimately alleviate the disability and burden of the disease.

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