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HIP FRACTURE; AN EPIDEMIOLOGICAL STUDY IN ALNAJAF - IRAQ

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Abstract

The objective of this work is to study the epidemiology of the proximal femoral fracture (hip fracture), which is regarded as abig public health problem especially in elderly. The study was conducted in the teaching hospital in Najaf between Feb.1999 till Feb.2002, for all hospitalized patients who they had hip fracture. There were 272 patient divided into two groups: The first aged 0-49 years, and the second aged 50 years and over. The first group included 40 patients: 30 male and 10 female, the mean age was 23 year. The causes of the fracture were fall from height 50%, road traffic accident 30%, and fall in 20% of the cases.

The second group included 232 patient: 156 woman and 76 man. Female to male ratio was 2:1.The mean age for this group was 68 years. The causes of the fracture were fall in 83%, fall from height in11%, and road traffic accident in 6%. The incidence of the fracture in the second group was 86/100,000 inhabitant/year in Al-Najaf. In conclusion: Hip fracture occurs more commonly in elderly especially women. Fall is the main cause of the fracture in elderly. New strategy is needed to face this health problem aiming to decrease its rate of occurrence.

Introduction

Hip fracture as a consequence of osteoporosis is an important cause of morbidity and mortality among the elderly[1-4]. The problem continues to be a medical, social, and economic challenge[5]. There were an estimated 1.66 million hip fractures world-wide in 1990. According to the epidemiological projection, this world wide annual number will rise to 6.26 million by the year 2050[1,6,7].The incidence increase with age[2,-5,8-10]. Females more commonly affected than males and the incidence is more than double in females with variation in different parts of the world[1,4,5,7,9,10]. Caucasian people in North America and Europe affected more than others[4,5,7]. Additional risk factors include bone losing and bone weakening disorders such as osteomalacia, diabetes, stroke, excessive alcohol and caffeine intake, chronic debilitating disease, previous hip fracture, use of psychotropic medication and senile dementia[4,5,11,12]. Fall is the most common cause of the fracture in elderly[5,11-15]. In young patient high energy trauma like fall from height and a blow sustained in car accidents are the main causes[4,5].

On anatomical bases hip fracture include two types; transcervical (intracapsular) fractures and inter-trochenteric (extracapsular) fractures [1,4,5,16]. The main difference between the two is that trochenteric fractures unite quite easily and seldom cause a vascular necrosis[4]. Osteoarthritis of the ipsilateral hip is rarely associated with intracapsular femoral neck fracture, whereas intertrochenteric fractures occur in the presence of degenerative changes[5].

Patient and method

All the patients who had hip fractures between Feb. 1999 and Feb. 2002 were included in this study. It was conducted in Al-Sader Teaching Hospital in Al-Najaf. Hip fracture included both cervical and trochenteric types. The data included the name, age, sex, address, cause of the fracture, and period of hospitalization.

The data about the whole number of the population in Alnajaf including sex distribution and age groups were taken from a statistical reference[17].

Results

The total number of the patients was 272. They were divided into two main groups. The first were those aged 0-49 years and the second were those aged 50 years and over (table I).

The first group constitutes of 40 patients. Their mean age was 23 years ranging from 2-48 years. They were 30 males (75%) and 10 females (25%). The causes of the fractures were as follow: fall from height in 20 patients (50%), road traffic accidents in 12 patients (30%), and fall in 8 cases (20%). There was 34 cervical fracture (85%), and 8 trochenteric fracture (15%).

The second group constitutes of 232 patients. They were 156 female (67%) and 76 male (33%). The female to male ratio was 2:1.The mean age was 68 years ranging from 50-96 year.

The incidence of the fracture in this age group was 86 /100,000 inhabitant /year in AlNajaf.

The causes of the fractures were as follow: fall in 192 patient (83%), fall from height in 26 patient (11%), and road traffic accidents in 14 patient (6%).

The distribution of the patients in relation to decades is shown in table (1). There were 44 patients (16%) in the 6^{th} decade, 58 patient (21%) in the 7^{th} decade and 130 patient (48%) in the 8^{th} decade and over.

There was 130 cervical fracture (56%), and 102 trochenteric fracture (44%). One hundred and twenty fractures occurred during summer months and 112 fractures occurred during winter months. There was 118 right sided fracture and 114 left sided fracture. The mean hospitalization period was 10 days.

Table II shows comparison of the results between the first and the second group.

Discussion

Hip fracture will become a big public health problem in the early future especially in Asia, Africa, and South America. The Middle East area is one of the parts where there will be a big rise in the incidence of occurrence of hip fracture[1,3,7]. At present time about half of the cases of hip fracture affect people in Europe and North America while by year 2050 about three quarter of these fractures will affect people in the other parts of the world including Middle East area[1,7]. The explanation for this change in incidence in different parts of the world is that the growth of the elderly population will be more marked in Asia, Africa, South America, and Middle East than Europe and North America[1,3,7,18].

In this study the results showed that the fracture affect old people were the mean age in patient older than 50 was 68 years. Women were affected more than men in ratio of 2:1. Higher incidence of the fracture in women is explained by women's lower bone mass and density and higher frequency of falling[1,4,19]. As in the literatures the main cause of the fracture in old people was low energy trauma (fall), while in young people high energy trauma (car accident & fall from height) were the main causes of the fracture[4,5,11-14].

In general three components contribute to the risk of fractures in elderly: lack of bone strength, the risk of falling and ineffective protective neuromuscular reactions when a fall occurs. Physical activity may decrease the risk of the fractures by modifying all three components: preventing or reducing bone loss at all ages, increasing muscular strength, and improving balance, flexibility, coordination, and reaction time[13].

Table II is to compare the results of this study and results from Malaysia and Argentina[8,20]. The mean ages for patient older than 49 years were 68, 73, and 78 year in Iraq, Malaysia, and Argentina respectively. The mean age was low in Iraq and this may be attributed to the high mortality rate among elderly, which is directly related to the Embargo on Iraq since1991. Regarding female to male ratio it was 2:1, 1.3:1, and 3.7:1 in Iraq, Malaysia, and Argentina respectively. This ratio is variable and needs explanation. The ratio in this study is comparable with that ratio all over the world, which is two times higher in women[1].

The incidence of hip fracture in this study (86/100,000) is comparable with that from Malaysia (70/100,000), but it is lower than that from Argentina (240/100,000)[8,20].

A study from Kuwait revealed that the incidence of hip fracture was 257/100,000 and this was higher than those reported from other countries in Asia, and was comparable to the incidence in some of the Western countries and North America. The incidence in Asian countries such as Korea. Singapore, China, Malaysia, and Japan were ranging between (41-202)[3]. Our incidence is comparable with that in other Asian countries[3] (Table III).

Conclusions

- Hip fracture will become a big public health problem in the early future, due to the progressive growth of elderly population
- Old people especially women are more vulnerable.
- Fall is the main cause of the fracture in old people.
- Preventive program is to be applied against osteoporosis and this may include apart from medications an exercise program which may effectively decrease the risk of fall related fractures in elderly.

Table I: Number and percentage of cases in relation to decades

AGE	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-up	Total
NO.	8	12	2	4	14	44	58	130	272
%	3%	4.4%	0.7%	1.4%	5%	16%	21%	48%	100%

Table II: Comparison between the two main age groups

Age group		0-49 year	50-over
No.of patients		40	232
Mean age		23	68
Gender	Male	30(75%)	76(33%)
	Female	10(25%)	156(67%)
Fracture location	Cervical	34(85%)	130(56%)
	Trochen.	6(15%)	102(44%)
Causes of the fracture	Fall	8(20%)	192(83%)
	Fall from height	20(50%)	26(11%)
	Road accident	12(30%)	14(6%)

Table III: Comparison between different studies

Place of Study	Iraq/AlNajaf	Malaysia/Kuala-Lampur	Argentina/La-plata
Mean age/year	**68**	**73**	**78**
Range of age	**50-96**	**50-103**	**50-96**
Female/male ratio	**2:1**	**1.3:1**	**3.7:1**
Incidence of fracture per 100,000 /year	**86**	**70**	**240**

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