Lower Extremities Fractures in Alnajaf/ Iraq

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Abstract

Purpose: To take an idea about the size of an important socioeconomically public health problem and to put solutions.

Material and Methods: All the patients who sustained lower extremities fractures in one year (between 1st Jan. till 31st Dec. 2018)included in this study. Data collected from the documents of Alsader medical city in Alnajaf, it included the types of fractures, ages , gender, side of fracture ,and causes. Analysis of these data was done and the results were demonstrated in tables.

Results: The total number of the patients was (2466),males (1655) and females(811).The types of the fractures include: hip fracture 350, fracture femure 738, patellar fracture 49, leg fracture 831, ankle fracture 220 and foot fracture 278. People in the 1st decade were the most 697 followed by the 3rd decade 446, 2nd decade 440 , 4th decade 287 , 7th decade 193, 5th decade 155, 6th decade 142 , and above 70 (106) patient. The most common cause of the fractures was RTA in 800 patient followed by fall 727, fall from height 594, and fall of heavy object 123 patients.

Conclusion: Children and adolescent are mostly affected. People below thirty represent more than 50% of the cases. Planes from all the government administrations showed be more effective to decrease the occurrence of such injuries by learning programs to avoid fractures in all ages , in order to decrease the socioeconomically burden on the community.

Key words: *Lower Extremity, Fractures , Lower Limb, Alnajaf*

Introduction

Lower limb fractures are common injuries . It account for about one third of all fractures. It may result in high rate of morbidity and mortality which can be reduced by early appropriate management.(1,2,) Fractures, mostly arising from injury, are a big public health problem .

In china injuries is the 5th most common cause of death, and resulting in more fatalities than DM and infectious diseases. (3,4)

In general males had significantly higher fracture prevalence than females in every age group except in old people where the prevalence is more in women.(4,5,6)

The high incidence of lower limb fractures in women is related to hip fracture, due to osteoporosis which affects women more frequently. In US the number of osteoporosis –related fractures was estimated to exceed 2 million in 2005. With time it causes increasing economic burden on the health care system. (5,6,7,8)

For our knowledge there are no updated papers which discuss this important issue in Iraq.

This paper is to discuss this problem from all sides regarding types of fractures, age groups and the causes .Hoping that the administrations will start putting planes

to decrease the rate of occurrence of these fractures and to put solutions and improve the methods of early management to decrease morbidity among population.

Material and method

This paper was conducted on patients attended the main hospital in Alnajaf (Alsader teaching hospital) in the period between the 1st of January 2018 to the 31st of December 2018.The data was collected from the documents of the outpatient clinic and from the emergency ward. The data include the age, gender, type of fracture, and the cause. For the age the patients were grouped according to the decades from one year old up to above 70 years old.

Regarding the types of fractures we started proximally from hip fracture, fracture femure, fracture patella, leg fracture, ankle fracture and foot fractures. Hip (proximal femure)fracture includes intra and extracapsular fractures. Fracture femure include all types of femoral shaft fractures including distal fractures. Leg fractures include isolated fractures of tibia or fibula or both of them. Ankle fractures include all fractures of distal tibia and fibula. Foot fractures include the tarsals , metatarsals, and fracture phalanges.

The causes of fractures include fall during walking or playing, fall from height (FFH), road traffic accidents (RTA), fall of heavy object (FHO), direct hit, sport mainly foot ball (FB), bullet injury, injury due to explosions, and machine injuries.

Statistical Analysis

Statistical analysis was done by using SPSS (statistical package for social sciences) version 20, in which we use frequency and percentage, mean and standard deviation as descriptive statistics. Chi square test used for analytic statistics. P value <=0.05 regarded significant.

Results

The total number of the patients was 2466 in one year. The number of the males was 1655(67.11%) and the number of females was 811(32.88%).

Table one shows details of gender, age range, mean age, and the side of the fractures.

Table (1): types of fractures, gender, age, side

Fracture Type	Male No.&%	Female No.&%	Age: rang	Mean age	Right side	Left side	Total
Hip	149 42.57%	201 57.42%	3-90	55.90	174 49.71%	176 50.28%	350 14.19%
Femure	516 69.91%	222 29.94%	1-88	17.40	379 51.35%	359 48.64%	738 29.92%
Patella	29 59.18%	20 40.81%	6-70	37.56	25 51.02%	24 48.97%	49 1.98%
Leg fractures	649 78.09%	182 21.90%	1-85	21.70	420 50.54%	411 49.45%	831 33.69%
Ankle	135 61.36%	85 38.64%	6-70	31.01	112 50.90%	108 49.09%	220 8.92%
Foot	177 63.66%	101 36.33%	3-75	30.67	136 48.92%	142 51.07%	278 11.27%
Total	1655 67.11%	811 32.88%	1-90	27.86	1246 50.52%	1220 49.47%	2466

The table show that the most common fracture was leg fractures (33.69%),followed by fracture femure(29.92%) . It also shoes that males affected more than females (67.11%) and (32.88%) respectively, ratio of(2.04:1). The mean age of the patients was (27.86) years. The right sides affected almost equally as the left sides in all fractures .

The table show that there was significant association (P<0.05) between hip fracture and female gender while all other fractures occur more in males.

Foot fractures include hind foot, mid foot and forefoot fractures. The hind foot fractures are those of calcaneum which constitute about 16% of all foot fractures , and the other 84% are those of mid and forefoot fractures. All affect males more than females.

Table (2) lower limb fractures/age groups

Fracture Type	Age group/No. &%								Total NO.
	1-10	11-20	21-30	31-40	41-50	51-60	61-70	>70	
Hip	18 5.14%	7 2%	14 45%	17 4.85%	18 5.14%	67 19.14%	138 39.42%	71 20.28%	350 14.19%
Femure	375 38.23%	122 16.53%	102 13.82%	60 8.13%	14 1.89%	27 3.65%	14 1.89%	24 3.25%	738 29.92%
Patella	---	3 6.12%	21 42.85%	5 10.20%	11 22.44%	3 6.12%	6 12.24%	----	49 1.98%
Leg fracture	278 33.45%	177 21.29%	178 21.41%	98 11.79%	51 6.13%	24 2.88%	14 1.68%	11 1.32%	831 33.69%
Ankle	5 2.27%	75 34.09%	42 19.09%	40 18.18%	28 12.72%	12 5.45%	18 8.18%	---	220 8.92%
Foot	21 7.55%	56 20.14%	89 32.01%	67 24.10%	33 11.87%	9 3.23%	3 1.08%	----	278 11.27%
Total	697 28.26%	440 17.84%	446 18.08%	287 11.63%	155 6.28%	142 5.75%	193 7.82%	106 4.29%	2466

Table (2) shows the type of the fracture in relation to age groups in decades. It is obvious that children up to ten years are mostly affected (28.26%) , and patient up to 30 years of age constitute about (64.18%) of the whole group It show significant association (P<0.05)between type of fracture and the age where fracture hip occur in old ages while all other fractures are more common in young people.

Table (3):causes of lower limb fractures

Fracture type	Cause of fracture/No.& %									Total
	Fall	Fall from height	Road Traffic Accident	Fall of heavy object	Direct hit	Foot ball	Bullet	Explosion	Machine	
Hip	246 70.28%	65 18.57%	35 10%	----	1 0.29%	----	3 0.85%	---	---	350 14.19%
Femure	161 21.18%	175 23.71%	324 43.90%	25 3.38%	1 0.13%	7 0.94%	25 3.38%	11 1.49%	9 1.21%	738 29.92%
Patella	17 34.69%	5 10.20%	27 55.10%	---	---	---	---	---	---	49 1.98%
Leg fractures	164 19.75%	200 24.09%	317 38.19%	38 4.57%	35 4.21%	32 3.85%	18 2.16%	27 3.25%	---	830 33.69%
Ankle	59 26.81%	71 32.27%	52 23.63%	---	18 8.18%	17 7.72%	3 1.36%	---	---	220 8.92%
Foot	80 28.77%	78 28.05%	45 16.18%	60 21.58%	5 1.79%	2 0.71%	7 2.51%	1 0.35%	---	278 %
Total	727 29.48%	594 24.08%	800 32.44%	123 4.98%	60 2.43%	58 2.35%	56 2.27%	39 1.58%	9 0.36%	2466

Table (3) show that the most common cause of neck femure fractures were fall(70.28%) ,while RTA was the most common cause of fracture femure(43.9%) , fracture patella (55.1%) and fracture leg (38.19%). Regarding ankle fractures the most common cause of fractures was fall from height(32.27%). For foot fractures the most common causes were fall(28.77%) and fall from height (28.05).

Discussion

Hip fracture(proximal femur)

The number of hip fracture expected to reach to 6.2 million by the year 2050 ,while it was 1.66 million in 1990. [8,9] It is more common in elderly people especially femals.The most common cause is fall. Osteoporosis is the main risk factor, it represents a major health problem because of its association with low energy trauma or fragility fractures

Hip fracture has been recognized as the most serious consequences of osteoporosis because of its complications . [10]

In our series hip fracture represent 14.2%of lower limb fracture , while JA Kaye et al found that it represent 16.7%.[2]

A.Moayyer et.al. found that the most common cause of hip fracture was fall . Female affected more than male and the percentage was 56.4% and 43.6% respectively. [11]

These figures are comparable to our figures where more than 70% of hip fractures were due to fall , and females represent 57.4% while males were 42.6%. with mean age of more than(55) year.

Fracture femure

Worldwide RTA injuries cause over 1.3 million deaths and many more disabilities annually. Approximately one in ten RTA injuries involve a femoral shaft fracture.[12]

The annual rate in children up to 18 years was 19.15 per 100.000.The primary cause include fall in children less than 6 years old, pedestrian RT in 6-9 years old ,and motor vehicle for teenager. [13] JA Kaye et. al. found that it represent 8.1% of lower limb fracture , while we found that it represent(29.92%) of lower limb fracture. In our study the mean age of patients was 17.4 years and about 38% were in the 1st decade and 16% in the 2nd decade which indicate that this fracture is more common in children. Also the most common cause was RTA(43.9%) followed by fall from height(23.7%) and fall in about (21.2%) .

Fracture patella

Peter Larson et al founded that the mean age was 54 years for all patients , it was 46year for males and 61year for females. Females affected more than males;56% for females and 44% for males.

They found that males have higher incidence than females in the 2nd decade of life , while females have higher incidence during the 6th and 7th decades.[14]

These results are not comparable with our study where the mean age in our study was 37 years and males affected more than females ,59% and 41% respectively. People in the 3rd and 5th decades affected more commonly, 43% and 22% respectively.

Leg fracture (tibia and fibula)

Diaphyseal tibial fractures are the most common long bone fracture.[15]

Mario Serotorio et al found that the age range between 14 and 83 years with average (32) years. Males affected more than females ,73.74% and 26.26% respectively. The most common cause was RTA (80%). Right side affected more than left. [16]

The mean age in our study was 21.7 years ranging from 1-85 years. Males represent 78% and females 22% which is comparable to other studies. People in the 1st decade affected more(33%), followed by people in the 3rd decade (21.4%) and 2nd decade(21.3%). Leg fracture was the most common fracture of lower limb in this study represents 33.69% of the whole group. The most common cause of this fracture was RTA (38%) followed by fall from height(24%) and fall(19%).

Ankle fracture

Ankle fracture is one of the most common fractures increasing in aging population.[17]

Rasmus Elsoe et al found that the mean age of patients was 41.4 years , males represent 53% and females 47%. The peak incidence was among adolescent with male predominance. The cause of fracture was fall in 61% and sports in 22%. [18]

In our study the patients were younger with mean age of 31 years ,males represent 61.36% and females 38.64% .Peak incidence was among people in the 2nd decade (34%). The main cause of the fracture was fall from height 32.3% followed by fall 26.8% and RTA 23.6%.

Foot fracture

Christian G.et al found that the mean age of patients was 36.1 year (females 41.3 years and males 31.3 years). Males represent 54.3% and females 45.7%.The peak incidence of the fracture was in the 2nd decade. People

under age of 30 years represent 43.9%.

The main cause of the fractures was low energy trauma (98.7%).Hind foot fracture occur in 8.3% of patient while mid and fore foot fractures occur in 91.7%. (19)

In our study patients with foot fracture were younger with mean age of 31 years. Males represent. 63.7% while females represent 36.3% . The peak incidence was among people in the 3rd decade of life. The cause of the fractures is low energy trauma in more than 78% of the cases. RTA was the cause in 16% of the cases. Hind foot fractures occur in 16% while mid and fore foot fractures occur in 84% of the cases.

Conclusion

Lower extremity fractures in general are more common in young people below 30 years except for hip fracture which is more common in old people. The most common cause is RTA. The most common type is leg fracture. Respect ion of regulation regarding road traffic is very important to decrease accidents. Also protection of children by family and school are most important. Regarding old people application of (fall prevention program) may be effective to decrease osteoporotic related fractures.

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