


ORIGINAL ARTICLE**A RETROSPECTIVE STUDY OF PREVALENCE OF LOWER LIMB FRACTURES**Rajneesh Jindal¹, Neera Jindal¹, Ankur Dass²¹Associate Professor, ²Assistant Professor Department of Orthopaedics, Mayo Institute of Medical Sciences Barabanki, U.P., India**ABSTRACT:**

Background: Lower limb fractures are very common injuries in older and represent the 50% of all fractures. This study was conducted to investigate and analyze the epidemiology of lower limb fractures. **Materials & Methods:** This study was conducted in department of orthopaedics from 2008 to 2012. It included 1050 cases with lower limb fractures. **Results:** Out of 1050 fractures, 650 (61.9%) were seen in males and 400 (38.1%) were seen in females. The difference was statistical significant. Maximum fractures were involving fibula in both males (210) and females (102). Tibial fractures were seen in 142 males and 76 females. Femur involvement was in 255 males and 94 females. Metatarsal fractures were seen in 20 males and 54 females. Patella was involved in 13 males and 41 females. Major reasons are osteoporosis and road traffic accident. **Conclusion:** Lower limb fractures are common in older. Therefore proper care and prevention should be taken to avoid fracture of lower limb.

Key Words: lower limb, fracture, osteoporosis, road traffic.

Corresponding Author: Dr. Rajneesh Jindal, Associate Professor, Department of Orthopaedics, Mayo Institute of Medical Sciences Barabanki, U.P., India

This article may be cited as: Jindal R, Jindal N, Dass A. A retrospective study of prevalence of lower limb fractures. J Adv Med Dent Sci Res 2016;4(6):23-25.

Access this article online	
Quick Response Code 	Website: www.jamdsr.com
	DOI: 10.21276/jamdsr.2016.4.6.7

INTRODUCTION

Bone fractures are considered a major public health problem. Lower limb fractures account for approximately one third of all fractures. They can occur isolated or in combination with other serious injuries, including cranial, spinal and upper body injuries. Those fractures were usually associated to osteoporosis and the aging process¹, although fractures in elderly individuals can also be related to loss of visual accuracy, muscle weakness, balance impairment, neurological and cardiovascular diseases.²

Road traffic accidents are one of the leading causes of morbidity and mortality worldwide, accounting for over one million deaths per year. It has been predicted that by 2020 global death rates from road traffic accidents will rise by 67% due to the effect of rapid population growth, industrialisation and an increase in road vehicles. The World Health Organisation predicts that road traffic injuries would become the sixth commonest cause of death by the year 2020 and the fifth by 2030.³

Osteoporosis is a chronic progressive disease that frequently affects elderly women, although it can occur in both sexes and age groups. It is characterized by low bone mass and loss of bone tissue with consequent increase of bone fragility. It is one of the main causes of hip and femur fractures and can lead to the patient's permanent disability.⁴ This severe consequence could limit mobility and daily activities and it also means large financial implications to the patient's family and Public Health Programs. The incidence of hip fractures varies between different geographic regions around the world.⁵ There is a high prevalence of these fractures in European countries going from north to south with Norwegian, Sweden, Denmark showing the highest rates and lower rates in countries around the Mediterranean.

This study aimed to analyze the prevalence of lower limb fractures.

MATERIALS & METHODS

This study was a retrospective type of study conducted in department of orthopaedics from 2008 to 2012. A total of 2070 fractures that occurred in 4 years were evaluated for the presence of lower limb fractures. A total of 1050 lower limb fractures were included in the study and was categorized according to age, gender and type of fractures. Results thus obtained were subjected to statistical analysis. The Chi Square test was used. P value < 0.05 was considered significant.

RESULTS

Table I shows age and gender distribution of patients. Out of 1050 fractures, 650 (61.9%) were seen in males and 400 (38.1) in females.

Maximum fractures were seen in above 70 years of age both in males (120) and females (78). Age group 61-70 years showed 102 males and 70 females. 90 males and 65 females were in age group 51-60 years. 31-40 years age group showed 92 males and 48 females. 41-50 years age

group showed 94 males and 56 females. 21-30 years age group showed 50 males and 38 females. 64 males and 25 females were seen in age group 11-20 years. 0-10 years age group showed 38 males and 20 females. The difference was statistically significant.

Table II shows distribution of lower limb fractures according to site of involvement. Maximum fractures were involving fibula in both males (210) and females (102). Tibial fractures were seen in 142 males and 76 females. Femur involvement was in 255 males and 94 females. Metatarsal fractures were seen in 20 males and 54 females. Patella was involved in 13 males and 41 females. Ilium/ischium/pubis fractures were seen in 10 males and 36 females. The difference was statistical significant between both genders.

Table III shows distribution of fractures based on etiologic agents. 30% of fractures occurred due to road traffic accident. Maximum fractures occurred due to osteoporotic bone disease. Fall (5%), work place injury (4.5%) and sport injury (7.6%) were other causes of lower limb fracture.

TABLE I: Age and gender distribution of fractures

Age Range	Male	Female	P Value
0-10	38	20	0.04
11-20	64	25	
21-30	50	38	
31-40	92	48	
41-50	94	56	
51-60	90	65	
61-70	102	70	
>70	120	78	
TOTAL	650 (61.9%)	400 (38.1%)	

TABLE II: Distribution of fractures in various sites

Total Fractures - 1050							
Gender	Tibia	Femur	Fibula	Meta Tarsus	Patella	Ilium/ Ischium /Pubis	P Value
Male	142	255	210	20	13	10	0.05
Female	76	94	102	54	41	36	

TABLE III: Distribution of fractures on the basis of etiology

Etiology	Road Traffic Accident	Osteoporosis	Fall	Work Place Injury	Sports Injury
Number	320	542	60	48	80
Percentage	30%	51.6	5%	4.5%	7.6
P Value	0.04				

DISCUSSION

Fractures, mostly arising from injury, are an important public health burden. There are a number of different ways in which the incidence of fracture in a population can be estimated from health care records.

In present study, we analyzed different lower limb fractures occurred in between 2008- 2012. This study was conducted in the department of orthopaedics.

We evaluated total of 2070 fractures during 2008-2012. Out of which 1050 were lower limb fractures. Out of 1050 fractures, 650 (61.9%) were seen in males and 400 (38.1%) in females. The higher prevalence of males as compared to females may be explained by the fact that women are involved in domestic activities rather than outdoor tasks and motorbicycle riding. Gassner et al.⁶ reported male: female ratio of 2.1:1 in Austria that they explain by a

greater involvement of women in economic activities outside the home.

Maximum fractures were seen in above 70 years of age both in males (120) and females (78) followed by seventh, six and fifth decades of life. The difference was statistically significant between both the sexes. The higher incidence of fractures in older may be due to osteoporosis and other abnormalities. Fitzpatrick et al⁷ reported that osteoporotic indices did not differ significantly between 89 cases of hip fracture in women over age 50 and their age matched controls.

While examining various fractures, Maximum fractures were involving fibula in both males (210) and females (102). Tibial fractures were seen in 142 males and 76 females. Femur involvement was in 255 males and 94 females. Metatarsal fractures were seen in 20 males and 54 females. Patella was involved in 13 males and 41 females. Ilium/ischium/pubis fractures were seen in 10 males and 36 females. The difference was statistically significant between both genders. Similar results have been obtained in various studies.^{8,9}

We also evaluated various causes leading to fractures. These were road traffic accident, osteoporotic bone disease, fall, work place injury and sports injury. Maximum fractures resulted from osteoporosis. Osteoporosis was the major reason for fractures in post menopausal females. Studies have described the osteoporosis induced fractures in older age group. With advancing age, there is decrease in bone density making bones brittle and susceptible to fractures. Komatsu (2004)¹⁰ and Jones (2007)¹¹ have found similar results.

We found that diagnosed osteoporosis was significantly associated with the risk of lower limb fractures and was an important predictor for hip and femur fracture in the elderly.

CONCLUSION

Author concluded that osteoporosis is the main cause of lower limb fractures. Maximum fractures were seen in age group above 70 years of age and males were more prone to developed fractures due to road traffic accidents and sports injury.

REFERENCES

1. Haleem S, Lutchman L, Mayahi R, Grice JE, Parker MJ. Mortality following hip fracture: Trends and geographical variations over the last 40 years. *Injury*. 2008; 39:157-1163.
2. Rossini M, Mattarei A, Braga V, Viapiana O, Zambarda C, Benini C, Pancheri S, Spanevello MC, Lovato R, Sella S, Giannini S, Olivi P, Lavini F, Giulini GM, Fracassi E, Gatti D, Adami S. Risk factors for hip fracture in elderly persons. *Reumatismo*. 2010; 273-82.
3. Dhanwal DK, Dennison E.M, Harvey NC, Cooper C. Epidemiology of hip fracture: Worldwide geographic variation. *Indian J Orthop*. 2011;15-22.
4. Cheung CL, Xiao SM, Kung AW. 2010. Genetic epidemiology of age-related osteoporosis and its clinical applications. *Nat Rev Rheumatology*. 2010; 507-17.
5. Woolf AD, A kesson K. Preventing fractures in elderly people. *BMJ*. 2003; 327: 89-95.
6. Fitzpatrick P, Kirke PN, Daly L, et al. Predictors of first hip fracture and mortality post fracture in older women. *Ir J Med Sci* 2001;170:49-53.
7. Gassner R, Tuli T, Hachl O, Rudisch A, Ulmer H. Craniomaxillofacial trauma: a 10 year review of 9,543 cases with 21,067 injuries. *J Cranio Maxillofac Surg*. 2003; 31:51-61.
8. Rocha MA, Carvalho WS, Zanqueta C, Lemos SC. Estudo epidemiológico retrospectivo das fraturas do fêmur proximal tratados no Hospital Escola da Faculdade de Medicina do Triângulo Mineiro. *Rev Bras Ortop*. 2001; 311- 316.
9. Lofthus CM, Osnes EK, Falch JA, Kaastad TS, Kristiansen IE, Nordsletten L, et al. Epidemiology of hip fractures in Oslo, Norway. *Bone*.2001;243-8.
10. Komatsu RS, Simões MFJ, Ramos LR, Szejnfeld VL. Incidence of proximal femur fractures in Marília, Brazil. *The Journal of Nutrition, Health & Aging*.2004; 23-27.
11. Jones S, Johansen A, Brennan J, et al. The effect of socioeconomic deprivation on fracture incidence in the United Kingdom. *Osteoporos Int*. 2004; 15: 520-4.

Source of support: Nil

Conflict of interest: None declared

This work is licensed under CC BY: *Creative Commons Attribution 3.0 License*.