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## Original Article

### Retrospective Evaluation Of Incidence Of Femur Fractures: A Hospital Based Study

Yogesh Kumar Agarwal

Medical Officer (Orthopaedics), RBM Hospital, Bharatpur, Rajasthan, India.

#### **ABSTRACT:**

**Background:** Although incidence of fractures involving the femur are widely spread among all age groups; mainly involving the infants and the elderly. The goal of this study is to evaluate the incidence of femur fracture. **Methods:** Femoral fractures were analysed in patients admitted in the hospital, provided with surgical care. During the study period around 50% of the population lived in nearby towns and cities, whereas the rest were from across the country. **Result:** On an average the skeletally mature residents involved in the study there were only 192 pupil who sustained traumatic femoral fractures during the study period. **Conclusion:** The early evaluation and enforcement of preventive and therapeutic protocols will help to reduce the occurrence of femur fracture.

**Keywords:** Traumatic, Therapeutic, Protocols.

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**Corresponding Author :** Dr. Yogesh Kumar Agarwal,, Medical Officer (Orthopaedics), RBM Hospital, Bharatpur, Rajasthan, India.

## INTRODUCTION

Very less epidemiologic studies have been published on femoral fractures. However, the data of the patients have been studied little attention has been on the classification of the fracture patterns using morphologic classification systems.<sup>1-4</sup> Since the frequency of road traffic accidents is rising so is the incidence of fractures. Also with the increase in the life expectancy due to prevalent medical facilities the number of Indian patients requiring treatment for conditions like femur fractures is likely to increase.<sup>5-8</sup> A recent study based on accurate analysis has estimated a rise in the incidences of femur fracture about 43%. It is worth considering that the percentage of fractures occurring over the age of 85 years may increase from 34% to 45% in coming years.<sup>9</sup> The largest age and gender incidences were observed in males from age 15 to 24 years and in females 75 years of age or more. 75% of the fractures were resultant of a high-energy trauma, rest occurred in road traffic accidents. The aim of the present study was to determine the incidence of femoral fractures amongst subjects reporting to the hospital.

## MATERIALS AND METHODS

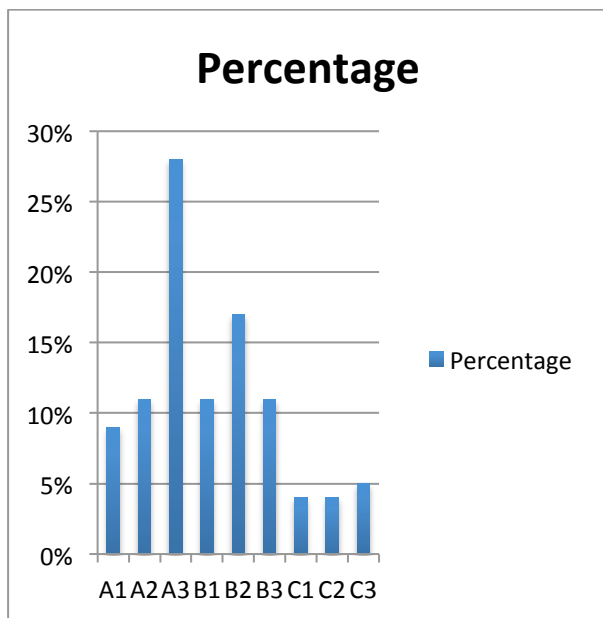
Femoral fractures were analyzed amongst patients admitted in the hospital in the last 1 year and they were provided with surgical care. All the subjects reporting to the hospital were included in the study irrespective of age and gender and race. The age- and gender-specific incidence rates of the femur fractures were taken into by dividing the number of cases in each age group by the number of the corresponding average age- and gender-specific population. The Complete medical records along with the radiographs of each patient were analyzed. The mode of occurrence of the injury is classified as follows: 1. road traffic accident, 2. fall from a height of 1 m or more 3. fall from height of less than 1 m 4. Slipping and stumbling at ground level 5. Crush and sports injury. Also it is worth noticing that the injury was considered a high-energy trauma only if it involved a motor vehicle accident or fall from minimum 1 m height or more. Subsequently a low-energy trauma can be defined as the fracture resulting from slipping or stumbling at ground level or falling from a height of 1m only. Considering the fracture line femoral shaft

was marked as the portion of the bone between the point 5 cm distal to the lesser trochanter and the point 8 cm proximal to the adductor tubercle. The exact point in the center of the main fracture line was recorded. The fractures of the femur were classified according to Gustillo classification. It was divided into type A, B and C. Chi square test and fisher t test were used for analysis and pp value of less than 0.05 was considered as significant.

**RESULTS**

Majority of the skeletally mature subjects were involved in the study. There were a total of 500 subjects reporting with fracture of different bones, out of these, there were only 192 subjects who sustained traumatic femoral fractures during the study period.

**Graph 1: Showing different type of femoral fractures.**



**Table 1: Different type of femur fractures**

Fracture of femur	Type	No. of fractures	Percentage	Median age of the patientd
A1		17	9%	75
A2		22	11%	41
A3		57	28%	24
B1		21	11%	52
B2		36	17%	21
B3		21	11%	22
C1		8	4%	34
C2		8	4%	22
C3		11	5%	26
<b>Total</b>		<b>201</b>		

Out of which, there were 70 (36%) female patients and 122 (64%) male patients involved with the fracture. The median age was kept at 27 years (range, 15-92 years). There were 38.4% subjects with femur fractures. The incidence for male patients from age group of 15 to 24 years was higher than the other male group. (Graph 1) Table 1 illustrates the different type of femoral fractures. Type A 1 fracture was seen in 9% subjects with median age of 75 years. There were 11% cases of type A 2 fractures and 28% cases of A 3 fractures. Type B1, B2 and B3 fractures were seen in 11%, 17% and 11% subjects with median ages 52 years, 21 years and 22 years respectively. Least incidence was that of C type fractures. The median age in C1 fractures was 34 years.

**DISCUSSION**

The occurrence of femoral fracture varies in different age groups. The extreme occurrence of femoral fractures in observed in males from 15 to 24 years of age group. In addition to the age-related occurrence of the femoral fractures do vary in different time of the year.<sup>10</sup> The study that type A 1 fracture was seen in 9% subjects with median age of 75 years. There were 11% cases of type A 2 fractures and 28% cases of A 3 fractures. Type B1, B2 and B3 fractures were seen in 11%, 17% and 11% subjects respectively. Least incidence was that of C type fractures. Even if 3/4 of the femoral shaft fractures are result of high-energy trauma, the number of low-energy fractures were considerable. A very common cause of the fracture in the elderly patients was low-energy trauma. This finding and excess number of female patients clearly indicate that the osteoporosis is also a major causative factor among the elderly patients.<sup>11</sup> The current study is also suggestive that the patients with spiral fractures were of more age than those with different types of fractures. The spiral fractures are generally resulting due to low-energy injuries. The dominant group resulting due to high-energy trauma or road side traffic accidents were mainly automobile drivers. The incidence of the concomitant injuries were directly related to high-energy trauma. However not many injuries were seen in patients suffering from low-energy femoral fracture. In accord to another study most of the femoral fractures were seen in the middle third of the femur. With respect to the extent of comminution merely 1/5 of the fractures were severely comminute.<sup>12</sup> Femoral fractures are not commonly thought because of a high-energy trauma as 1/4 of the femur fractures in the study were a result of low-energy injury. On the basis of the epidemiologic stats from this study, majority of the femoral fractures occurring in the population can be treated adequately with standard intramedullary nails, rather than the interlocking nails thus providing more stability of fixation and fracture alignment can be achieved. This type of study may help the government and the health authorities to establish potential areas to canalise the resources for the betterment of the county. Preventive measures to avoid femoral fractures should aim primarily on protection of automobile drivers (young men) and also on the prevention and treatment of osteoporosis occurring in elderly women.

## CONCLUSION

As per our study, 38.4% subjects sustained femur fractures. However, the age-related occurrence of femoral fractures has declined but the number of fractures is more likely to increase over the next few years as the population ages. The early evaluation and enforcement of preventive and therapeutic protocols will help to reduce the occurrence of femur fracture, and more importantly improve the quality of life for the patient after femur fracture.

## REFERENCES

1. Müller ME, Nazarian S, Koch P, Schatzker J: The Comprehensive Classification of Fractures of Long Bones. Berlin, Springer-Verlag 1-29, 128-137, 1990.
2. Arneson TJ, Melton III LJ, Lewallen DG, O'Fallon WM: Epidemiology of diaphyseal and distal femoral fractures in Rochester, Minnesota, 1965-1984. Clin Orthop 234:188-194, 1988.
3. Bengnér U, Ekblom T, Johnell O, Nilsson BE: Incidence of femoral and tibial shaft fractures. Epidemiology 1950-1983 in Malmö, Sweden. Acta Orthop Scand 61:251-254, 1994.
4. Knowelden J, Buhr AJ, Dunbar O: Incidence of fractures in persons over 35 years of age. Br J Prev Soc Med 18:130-141, 1964
5. Health Episode Statistics Online. Primary diagnosis: 4 character, S72.0–S72.2. <http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937>
6. cBeringer TR, Wilson RA, Swain D, Patterson CC, Beverland D. Proximal femoral fracture in Northern Ireland between 1985–1997—trends and future projections. Ulster Med J 2000;69:112–7.215.
7. Brophy S, John G, Evans E, Lyons RA. Methodological issues in the identification of hip fractures using routine hospital data: a database study. Osteoporos Int 2006;17:405–9.
8. Brauer CA, Coca-Perraillon M, Cutler DM, Rosen AB. Incidence and mortality of hip fractures in the United States. JAMA 2009;302:1573–9.
9. Holt G, Smith R, Duncan K, Hutchison JD, Reid D. Changes in population demographics and the future incidence of hip fracture. Injury 2009;40:722–6.
10. Arneson TJ, Melton III LJ, Lewallen DG, O'Fallon WM: Epidemiology of diaphyseal and distal femoral fractures in Rochester, Minnesota, 1965-1984. Clin Orthop 234:188-194, 1988.
11. Wong PCN: An epidemiologic appraisal of femoral shaft fractures in a mixed Asian population-Singapore. Singapore Med J 7:236-239, 1966.
12. Winquist RA, Hansen Jr ST: Comminuted fractures of the femoral shaft treated by intramedullary nailing. Orthop Clin North Am 11:633-648, 1980.

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