

**Original article:**

## **Assessment of Incidence of Hip Fractures: A Hospital Based Study**

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**Abstract**

**Background:** Hip fractures in the aged constitute a major health problem with substantial morbidity and mortality. Hence; we planned the present study to assess incidence of hip fractures among known population.

**Materials & Methods:** The present study included evaluation of incidence of hip fractures in a known population. Retrospective assessment of medical records of patients was done. Complete demographic details of all the patients were recorded from the data record files. Among these patients, separate record was maintained of the patients with hip fractures. This was done for assessing the incidence of hip fractures. Radiographic evaluation of the hip fracture patients was done. All the records were compiled in Microsoft excel sheet and were analysed by SPSS software.

**Results:** Overall incidence of hip fracture was found to be 14.3 percent. Among males, the overall incidence of hip fractures was found to be 12.8 percent. Overall incidence of hip fractures among females was found to be 17.3 percent. Both among males and females, hip fractures were found to be more prevalent among subjects within the age group of 41 to 50 years.

**Conclusion:** Hip fractures represent significant health problem. Therefore, proper measures should be taken for identifying the etiologic agents so that its incidence could be reduced.

**Key words:** Fracture, Hip, Orthopaedic.

### **INTRODUCTION**

Hip fractures in the aged constitute a major health problem with substantial morbidity, mortality, and, as the ageing population increases, an increasing burden on the health care system. Fracture risk varies markedly between countries.<sup>1,2</sup> Studies over the last few decades have demonstrated geographic variation in the incidence of hip fracture across continents as well as among different parts of a region. Incidence of hip fracture is highest in Sweden and North America, with almost seven-fold lower rates in Southern European countries. Hip fracture rates are also lower in Asian and Latin American populations.<sup>3-6</sup> But as three-quarters of the world's population live in Asia, it is projected that Asian countries will contribute more to the pool of hip fractures in coming years. It is estimated that by 2050 more than 50% of all osteoporotic fractures will occur in Asia.<sup>7,8</sup> Hence; we planned the present study to assess incidence of hip fractures among known population.

### **MATERIALS & METHODS**

The present study was planned in the department of Orthopaedics, RUHS College of Medical sciences, Jaipur, Rajasthan, India. It included evaluation of incidence of hip fractures in a known population. Retrospective assessment of medical records of patients was done. Complete demographic details of all the patients were recorded from the data record files. Among these patients, separate record was maintained of the patients with

hip fractures. This was done for assessing the incidence of hip fractures. Radiographic evaluation of the hip fracture patients was done. Certified and experienced orthopaedic surgeons were recruited for assessing the radiographs. All the records were compiled in Microsoft excel sheet and were analysed by SPSS software. Univariate regression curve was used for assessment of level of significance.

**RESULTS**

Data records of a total of 1000 patients reporting to the hospital were included in the present study. Among these 1000 patients, 740 were males while the remaining 260 were females. Among these 1000 patients, hip fracture was found to be present in 143 patients. Among these 143 patients, 45 were females while the remaining 95 patients were males. Mean age of the males patients was 48.2 years while the mean age of the female patients was 45.8 years. Overall incidence of hip fracture was found to be 14.3 percent. Among males, the overall incidence of hip fractures was found to be 12.8 percent. Overall incidence of hip fractures among females was found to be 17.3 percent. Non-significant results were obtained while comparing the incidence of hip fractures among males and females. Both among males and females, hip fractures were found to be more prevalent among subjects within the age group of 41 to 50 years.

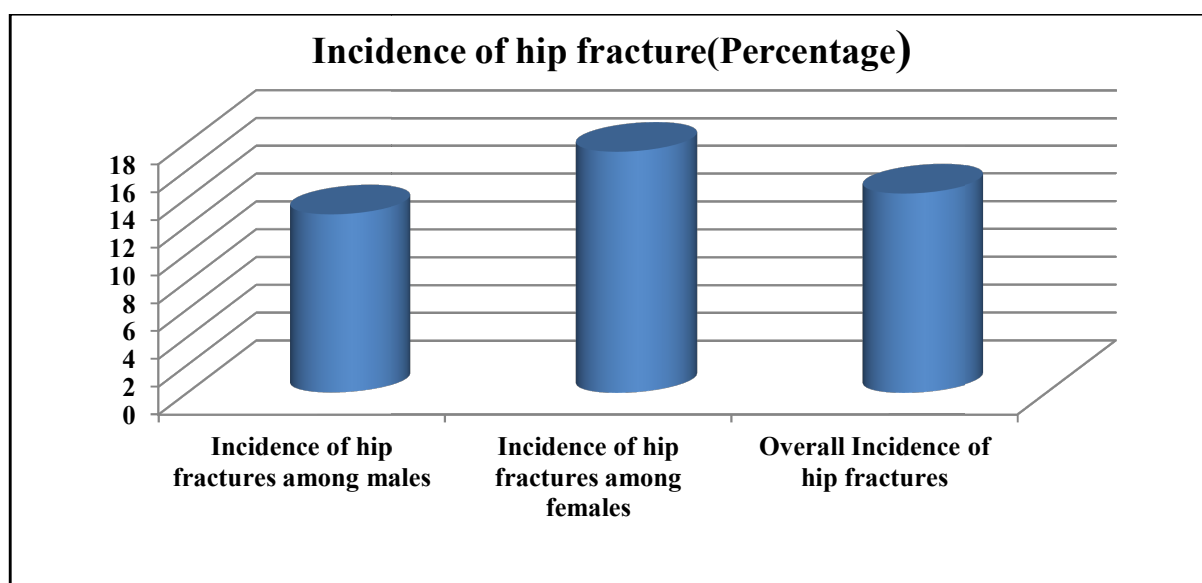
**Table 1: Hip fractures patients**

Parameter	Males	Females	Overall
Hip fracture patients (n)	98	45	143

**Table 2: Incidence of hip fractures**

Parameter	Value (Percentage)
Incidence of hip fractures among males	12.8
Incidence of hip fractures among females	17.3
Overall Incidence of hip fractures	14.3

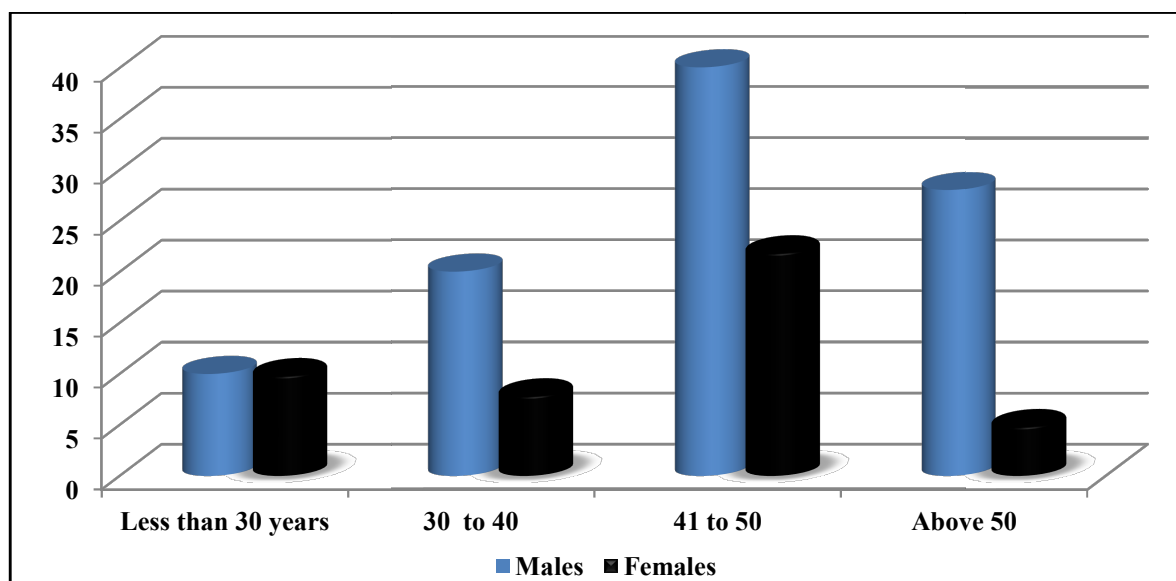
**Graph 1: Incidence of hip fractures**



**Table 3: Age wise-distribution of subjects with hip fractures**

Age group	Males	Females	Overall
Less than 30 years	10	10	20
30 to 40	20	8	28
41 to 50	40	22	62
Above 50	28	5	33
<b>Total</b>	<b>98</b>	<b>45</b>	<b>143</b>

**Graph 2: Age wise-distribution of subjects with hip fractures**



## DISCUSSION

In the present study, a total of 1000 patients were included. Among these 1000 patients, 740 were males while the remaining 260 were females. Among these 1000 patients, hip fracture was found to be present in 143 patients. Emaus N et al described age- and sex-specific incidence of hip fractures in a Northern Norwegian city. Data on hip fractures from 1994 to 2008 in women and men aged 50 years and above were obtained from the Harstad Injury Registry. There were altogether 603 hip fractures in Harstad between 1994 and 2008. The annual incidence rose exponentially from 5.8 to 349.2 per 10,000 in men, and from 8.7 to 582.2 per 10,000 in women from the age group 50-54 to 90+ years. After adjusting for age at hip fracture, mortality after fracture was higher in men than in women 3, 6 and 12 months ( $p \leq 0.002$ ) after fracture. There are regional differences in hip fracture incidence that cannot be explained by a north-south gradient in Norway.<sup>9</sup> Diamantopoulos AP et al studied the incidence of fragility hip fracture in southern Norway. All patients with fragility hip fractures aged 50 years or older in 2004 and 2005 in southern Norway were included. A total of 951 (271 men, 680 women) individuals aged  $\geq 50$  years with hip fracture were identified. The age-adjusted incidence rate was 34.6 for men and 75.8 for women per 10,000 person-years. Age specific incidence rates were significantly higher in women than in men but only for age groups between 70 and 90 years. Age-adjusted incidence of hip fracture in men and women in southern Norway is the lowest reported from Norway and among the lowest in Scandinavia.<sup>10</sup>

Among these 143 patients, 45 were females while the remaining 95 patients were males. Mean age of the males patients was 48.2 years while the mean age of the female patients was 45.8 years. Overall incidence of hip fracture was found to be 14.3 percent. Among males, the overall incidence of hip fractures was found to be 12.8 percent. Memon A et al estimated the incidence of hip fracture in Kuwait and compared it with other populations. The study was conducted at a specialized orthopaedic hospital which provides services to residents in the three governorates--representing about 70% of the total population of Kuwait. All new hip fracture patients who were operated on or treated conservatively during the 4-year period (1992-1995) were included in the study. A total of 513 cases of hip fracture (205 females, 308 males) were recorded during the study period: 293 (57.1%) cases occurred among Kuwaiti nationals and 220 (42.9%) among non-Kuwaitis (expatriates). Age-standardized rates (per 100,000) of hip fractures were, in Kuwaitis, 295 for females (95% CI: 238.8-350.8) and 200 for males (95% CI: 163.3-236.5)--much higher than those observed in other Asian countries such as Korea, Singapore, China, Malaysia, and Japan (41-202 for females, 49-100 for males). The incidence of hip fracture in the Kuwaiti population is higher than that reported from other countries in Asia and is comparable to the incidence in some of the western European and North American populations.<sup>11</sup>

Overall incidence of hip fractures among females was found to be 17.3 percent. Non-significant results were obtained while comparing the incidence of hip fractures among males and females. Both among males and females, hip fractures were found to be more prevalent among subjects within the age group of 41 to 50 years. Dhanwal DK et al studied hip fracture incidence in Rohtak district of North India. The study was conducted in Rohtak district, Haryana state; India located 80 km north of New Delhi. All patients having hip fracture admitted in Pt BD Sharma PGI or one of the four orthopaedic centres located in Rohtak in year 2009 were included. A total of 541 patients with hip fracture were hospitalized in Rohtak district in year 2009. Out of these 304 were from Rohtak district. Hip fracture crude incidence above the age of 50 years was 129 per 100,000. The corresponding figures were 105 and 159 per 100,000 among men and women respectively. Hip fracture incidence was similar in both sexes till age of 55 years. From age of 55 onwards the rates were significantly higher in women. This is the first hip fracture incidence study from India. Hip fracture incidence rates in Rohtak district of India are intermediate between those in the industrialised world and Africa and similar to some of Asian countries such as China, Iran and South Korea.<sup>12</sup>

## CONCLUSION

Under the light of above obtained data, the authors conclude that hip fractures represent significant health problem. Therefore, proper measures should be taken for identifying the etiologic agents so that its incidence could be reduced. However; further studies are recommended.

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