



The Incidence of Hip Fractures in the Study Population: A Retrospective Study

Muhammad Tahir Lakho¹, Sajjad Ali Bughio², Abdul Rehman Khan³, Zahoor Illahi Soomro⁴, Asfandiyar Khan⁵, Madan Lal⁶, Niaz Hussain Keerio⁷

¹Assistant Professor Orthopaedics, Dow University of Health Sciences & Dr Ruth K.M PFAU Civil Hospital Karachi Pakistan; ²Senior Registrar Orthopaedics, Ward 14 Jinnah Postgraduate Medical Centre Karachi Pakistan; ³Assistant Professor Orthopaedics, DIMC, Dow University of Health Sciences Karachi Pakistan; ⁴Associate Professor Orthopaedics, Peoples University of Medical & Health Sciences Nawabshah Pakistan; ⁵Assistant Professor Orthopaedics, Pakistan Institute of Medical Sciences Islamabad, Pakistan; ⁶Specialist Orthopaedic Surgeon, Department of Orthopaedics, Sheikh Khalifa Medical City Ajman, United Arab Emirates; ⁷Assistant Professor Orthopaedics, Muhammad Medical College and Hospital Mirpurkhas, Pakistan.

ABSTRACT

Introduction: Hip fractures can occur when the femoral neck, the region between the larger and lesser trochanters, or the area below the lesser trochanter breaks. Intertrochanteric fractures are extracapsular fractures of the proximal femur that occur between the greater and lesser trochanters. A subtrochanteric hip fracture occurs when a break between the region 5 cm below the lesser trochanter.

Aim: To determine the incidence of hip fractures in the study population

Methodology: This study comprised a total of 670 patients. There were 315 (47%) males and 355 (53%) females. The Proforma was created to record demographic information, hip fracture complications and lab test results. Every patient who was a part of this study gave their written informed permission. Before collecting data and publishing it in a medical publication, an ethics committee's consent was obtained. The participants were chosen using a non-probability sequential selection approach.

Results: The present studies show that higher numbers of hip fractures were observed in older age (above 66 years), in which 69% of females and 57% were males. The major cause of hip fracture was fall and slippage that broke the hip bone, it was found more in females (81.6%) than males (39.7%). Complications were observed due to waiting for their operative procedures. The delay has led to pulmonary, cardiac problems, and bedsores. However, in 80% of cases, the union of hip fracture was observed.

Conclusion: The present study concluded that the incidence rate of hip fracture increases with respect to age. In males, a major cause of hip fracture was accidents. Hip fractures are more prevalent in females, and fall and slippage are the major causes.

Key Words: Hip fractures, Incidence, Hip Fractures, Subtrochanteric, Intertrochanteric, Operative procedures

INTRODUCTION

A national-wide registry for fractures has not been established in Pakistan. Limited data has been available about the incidents and prevalence of hip fractures. Hip fractures can be the ultimate result of osteoporosis, a serious consequence of osteoporotic weak bones.¹ Osteoporosis occurs when bone microarchitecture is disrupted, and bone mineral density (BMD) diminishes, resulting in bone fragility and increased risk of fractures. From the age of 50 years, one in every three women and one in every five males would have an osteoporotic fracture in their lives.²

This is a major health problem associated with fragility fractures. It is a silent disease and can cause serious health issues for both genders. Despite substantial advances in osteoporosis diagnosis and treatment, low rates of osteoporosis investigation and treatment in people who had fragility fractures have been found over the world.³ Fragility fractures have been more common in older persons with osteoporosis.⁴ Fragility fractures can have various medical and psychological consequences, lowering the older person's quality of life and potentially shortening their lifespan.

The most serious complication of osteoporosis is hip fracture, which includes disability, chronic pain, reduced life

Corresponding Author:

Muhammad Tahir Lakho, Assistant Professor Orthopaedics, Dow University of Health Sciences & Dr Ruth K.M PFAU Civil Hospital Karachi Pakistan; Email: lakhosurgeon@gmail.com

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quality and even mortality.⁵ Osteoporotic fractures are most common in the spinal column, distal radius and hip. An osteoporotic hip fracture, particularly an intertrochanteric fracture, is the most dangerous, with significant morbidity, death and disability rates.

Hip fractures can occur when the femoral neck, the region between the larger and lesser trochanters, or the area below the lesser trochanter breaks. Intertrochanteric fractures are extracapsular fractures of the proximal femur that occur between the greater and lesser trochanters. A subtrochanteric hip fracture occurs when a break between the region 5 cm below the lesser trochanter.⁶

According to the International Osteoporosis Foundation (IOF), osteoporosis affects 7.2 million Pakistani women out of a total population of 9.9 million. Furthermore, the prevalence of osteopenia in Pakistan is estimated to be around 40 million people, with both genders affected equally. The number of people living with osteoporosis in Pakistan is anticipated to rise to 11.3 million by 2020 and 12.91 million by 2025.⁷ There is limited data available in Pakistan on the epidemiology and demography of osteoporosis and related hip fractures. It is critical to determine the most important risk factors for osteoporosis. Little data on the impact of age, educational levels, employment and marital status is available.⁸

The present study has focused to determine the incidence rate of Intertrochanteric and Subtrochanteric Hip Fractures and fracture neck of femur in the study population.

Study design: A Retrospective Study

Place and Duration: This study was conducted at Dow University of Health Sciences & Dr Ruth K.M PFAU Civil Hospital Karachi Pakistan from July 2017 to February 2022.

Methodology

For this retrospective study, a total of 670 patients were included. Permission was taken from the ethical review committee of the institute. The Performa was created to record demographic information, hip fracture complications and lab test results. All hip fractures cases were incorporated into the study. The mean and standard deviation are used to depict the quantitative data. The percentages were used to express categorical and nominal data. The P-value significance criterion was set at 0.05. SPSS version 21.0 was used for all analyses

RESULTS

The present study shows that higher numbers of hip fractures were observed in older age (above 66 years), in which 69.57% were females and 57.7% were males. On the other hand, from 56 to 65 years of age, females were 16.05% and males were 13.9 %. However, at the age of 26-35 years,

males were 14.9 % and females were 3.09% (As shown in Table 1).

The present study showed that the major cause of hip fracture was fall, and slippage that breaks the hip bone, it has been found more in females (81.6%) than males (39.7%). The second major cause of hip fracture was road accidents that involved higher cases of males (36.1 %) than females (7%). However, Obesity has also contributed to hip fracture cases. Other reasons such as reduced BMD, smoking, deficiency of Vitamin D have also been observed as a cause of hip fractures (As shown in Table-2).

Table 3 shows that 5.7% of males and 8.1% of females were infected with different infections. More cardiac complications were observed in the present study and found that 5.7% of males and 7.04% of females presented with post-fracture cardiac complications. Bedsores were observed in 0.6% of males and 2.5% of females. However, mortality rate was observed in 3.1% of males and 6.1% of females.

Table 1: Distribution of hip fracture cases concerning age and gender

Age (years)	Female (355)	Male (315)
26- 35	11 (3.09 %)	47 (14.9%)
36-45	18 (5.07 %)	23 (7.3%)
46-55	22 (6.1 %)	19 (6%)
56 and 65	57 (16.05 %)	44 (13.9%)
66 and above	247 (69.57%)	182 (57.7%)
Total	355	315

Table 2: Incidents leads to hip fracture

Cause	Male	Female
H/o fall or slippage	141 (39.7 %)	290 (81.6 %)
Road accidents	114 (36.1 %)	25 (7%)
Obesity	11 (3.4 %)	17 (4.7 %)
Other	33 (10.4 %)	23 (6.47 %)

Table 3: Post-fracture complications in study participants

Complications	Males	Females
Pulmonary complications	4 (1.26 %)	11 (3.1 %)
Infections	18 (5.7 %)	29 (8.1 %)
Bed sores	2 (0.6 %)	9 (2.5 %)
Cardiac complications	18 (5.7 %)	25 (7.04 %)
Mortality in 1 st year	10 (3.1 %)	22 (6.1%)
Total	52 (16.5 %)	96 (27%)

DISCUSSION

There are very few studies available to report the hip fracture incidence in Pakistan. Hip fracture rates are available in

many Asian countries, including China, Taiwan, Malaysia, Japan, Singapore, the Middle East and India.

Our study findings are in line with a study conducted in Sialkot, Pakistan showed an incident rate in 2 hospitals from 2015 to 2019 and evaluated that there were age-standardized hip fracture incidence rates of 127.3 in 100,000 people per year in males 164.6 in 100000 persons per years in women. The present study found that males and females of older age were more prone to hip fractures. However, males from age 26 to 35 years have been found to have a high rate of hip fractures. It could be possibly due to the accident and related injuries, falls and spillage.⁹

The hip fracture incidence rate in Japan has been evaluated using National Health Insurance Claim in the recent study. The data were evaluated from 2012- to 2015 and showed that in 70 years old males and females, the fracture risk increased by 1.5–2 times according to age groups of five years. There was a substantial rise in four age groups in men (95–99, 90–94, 85–89 and 65–69 years), while the rest showing no change.¹⁰

In most US publications, the three East Asian ethnic groups of Chinese, Japanese and Korean are included as “Asians.” The frequency of fragility fractures in these three East Asian ethnic groups is comparable.¹¹

Recent Chinese study showed the frequency of hip fractures in China appeared to be increasing. Over five years, the number of hip fractures increased in all age categories in males and females. According to their findings, the total number of hip fractures has grown fourfold. This seeming inconsistency may indicate China’s major aging problem. With a rapidly aging population, people aged 65 years and over are expected to rise considerably, from roughly 14 percent in 2025 and 30 percent by 2050.¹²

However, a recent study in Sri Lanka showed a progressive escalation in hip fracture incidence with age, and an exponential surge beyond 70 years was noted. The prevalent age group for hip fracture was 70–79 years (37 %). The majority of the data was collected from women patients who suffered hip fractures were about 81%. The hip fracture incidence was 3.7 times higher in females than males. Among people aged >50 years, approximately 3824 hip fractures would have happened in the country in 2018. According to the current demographic forecasts, hip fractures will increase by 3-fold in 2051.¹³

Due to a lack of national registries and published data, there is a scarcity of epidemiological data on osteoporosis in Pakistan. The diagnostic capabilities for osteoporosis are restricted and DXA equipment is only available in big towns and cities. Numerous hospital-based studies in last five years using heel ultrasonography have found an upsurge in the frequency of osteoporosis. Despite Pakistan’s high incidence of

osteoporosis and osteopenia, there is a lack of data on the frequency of osteoporosis-related fractures and the disease’s burden. This region’s mortality rates after hip fractures are unknown. While such rates in western populations range from 25 to 35 percent, they are 2–3 times greater in the Middle East. There is almost no information available on social costs and life quality.¹⁴

Post-fracture complications have also been highlighted in studies that lead to severe complications while waiting for hip fracture surgeries. One study observes an increase in the risk of myocardial infarction, pneumonia and heart failure is statistically significant after 36 hours and multivariate analyses in 30 and 90-day follow-ups.¹⁵ Research found an increased incidence of deep vein thrombosis associated pulmonary embolism and operation waiting times surpassed 24 hours.¹⁶ Similar results were observed in our study where 3% of females and 1.2% of males developed pulmonary complications. Whereas 3% of mortality was observed in males and 6% of mortality was observed in females.

CONCLUSION

The present study concluded that the incidence rate of hip fracture increases with respect to age. In males major cause of hip fracture was accidents. Hip fractures are more prevalent in females, and fall and slippage are the major causes. There are very few studies available for hip fracture incidence. Further studies should be conducted to evaluate it in the future.

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