



International Journal of Orthopaedics Sciences

ISSN: 2395-1958
IJOS 2016; 2(3): 100-102
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www.orthopaper.com
Received: 18-05-2016
Accepted: 21-06-2016

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Clinical profile of patients with unstable proximal femoral fractures

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Abstract

Many studies suggest an increased mortality among patients who develop osteoporotic fractures, particularly fractures of the hip. Mortality in the acute phase reaches 5% and after a year from the fracture 30%. It has been calculated that the risk of death due to hip fracture is comparable to that of breast cancer. After the first year from the fracture event, the risk of mortality is comparable to that of the general population standardized by age and sex. 30 patients treated by proximal femoral locking compression plate and 30 patients treated by proximal femoral nailing was selected for study. Out of 60 patients, 34 (43.33%) were Inter-trochanteric fractures and 26(56.67%) were Sub-trochanteric fractures

Keywords: Inter-trochanteric fractures, Sub-trochanteric fractures, Clinical profile

Introduction

Proximal femoral fractures are subdivided according to their anatomical location into intra capsular and Extracapsular, depending on whether the fracture is inside or outside the capsule of the hip joint. Intracapsular fractures include subcapital and cervical fractures, while extracapsular fractures consist of trochanteric and subtrochanteric fractures and basicervical fractures occur at the junction^[1].

The actual dividing line between trochanteric and subtrochanteric fractures is debatable as also is the dividing line between subtrochanteric fracture and femoral diaphysial fracture.

Intertrochanteric fractures occur more laterally to femoral neck fractures in the area between greater and lesser trochanters. Subtrochanteric fractures extend from lower limit of lesser trochanter to isthmus of diaphysis which is around 5 cm below the lesser trochanter^[2].

Calcar femorale is a vertical wall of dense compact bone extending from postero-medial aspect of femoral shaft to posterior aspect of femoral neck, forms an internal trabecular strut within the inferior portion of femoral neck and intertrochanteric region, acts as a strong conduit for stress transfer^[3].

The number of hip fractures that occur in the world has been estimated to be 1.66 million in 1990 and is predicted to rise to 6.26 million by the year 2050^[4]. Their incidence is in constant increase probably due to the demographic modifications and the continuous increment of the average life of the population and therefore the presence of a higher number of elderly patients^[5]. From 1999 to 2002 there has been an increase of the incidence of hip fractures equivalent to 9.2% connected almost exclusively to the increase in incidence of fractures in women over 75 years of age, going from 47.552 in 1999 to 53.628 in 2002, with an increase of 11.3% in 4 years.

The risk of these fractures increases exponentially with the increase of age and is higher in women (male-female ratio: 1-3, in Caucasian race). Because women have more bone loss than men, their incidence of hip fractures is about twice that seen in men at any age in the USA and Europe. Furthermore, women live longer than men so that more than three-quarters of all hip fractures occur in women.

The reduction of BMD related to age is the main factor which exposes elderly people to a greater risk of hip fracture. Hip fractures are strongly associated with BMD in the proximal femur, but there are also many clinical predictors of hip fracture risk that are independent of bone density. Hip fracture incidence was 17 times greater among 15% of the women who had five or more of the risk factors, exclusive of bone density, compared with 47% of the women who had two risk factors or less. However, the women with five or more risk factors had an even greater risk of hip fracture if their bone density Z score was in the lowest tertile.

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There is a geographic difference in hip fracture incidence in that the age- and sex-adjusted hip fracture rates are higher in northern Europe than in southern Europe. Another area with a high hip fracture incidence is North America. Today about half of the hip fractures occur in Europe and North America; in 2050 this proportion will fall to one quarter due to the greater increase in population size in the other regions. The steepest increases will be observed in Asia and Latin America.

Many studies suggest an increased mortality among patients who develop osteoporotic fractures, particularly fractures of the hip. Mortality in the acute phase reaches 5% and after a year from the fracture 30%. It has been calculated that the risk of death due to hip fracture is comparable to that of breast cancer. After the first year from the fracture event, the risk of mortality is comparable to that of the general population standardized by age and sex [6].

Hip fractures are common in India, but reliable epidemiological data are lacking. Data suggest that men are more affected than women. Nordin reviewed 119 hip fractures and found that in India, they occurred in all age groups with two peaks at 30-39 years and again at 50-70 years [7].

Gupta *et al* from Kanpur analysed 425 hip fractures, 63 per cent of which were in men. The average age of fracture was 49 year in men and 57 year in women and combined average age was 55 years [8] Vaishnava and Rizvi found osteoporosis in 141 out of 421 hip fracture patients and again half their patients were men [9].

Recent data from Sankaran involving 1393 patients of hip fractures from 3 large hospitals in Delhi indicated that these fractures are common in both sexes, although sex ratio in different subgroups were variable and not always in favour of men. The peak age of fractures was 60-70 years [10]. Even though overall number of hip fractures have increased in the last few decades there has been an increase in trochanteric and neck of femur fracture incidence ratio [11]

Methodology

Study Period: October 2013-January 2015

Sample size: 30 patients treated by proximal femoral locking compression plate and 30 patients treated by proximal femoral nailing was selected for study.

The study was prospective and patients were selected based on the following criteria.

Inclusion Criteria

1. Closed Proximal femoral unstable fractures involving Trochanteric and sub-trochanteric fractures.
2. Age >18 years (skeletal maturity)
3. Sex-patients of both sexes
4. Injury duration <3 weeks.

Exclusion Criteria

1. Pathological fractures.
2. Patients associated with life threatening injuries.
3. Associated co-morbidity that hampers the mobility of patient and medical contra-indications of surgery.
4. Patients having other injuries in ipsilateral limb
5. Local site infection
6. Psychiatric patients

All patients with proximal femoral fractures on admission to Central Institute of Orthopaedics were first managed by traction and other routine protocol for general care. All patients were attended in orthopaedic emergency room and detailed history followed by through general examination and local examination including neurovascular status of all the

limbs was done. Routine Investigations and Pre-anaesthetic check-up. Radiological examinations: X-Ray of Bi-lateral Hip with pelvis A-P view, X-ray of Hip with Thigh A-P and Lateral view, Computed tomography 3 D reconstruction

Results

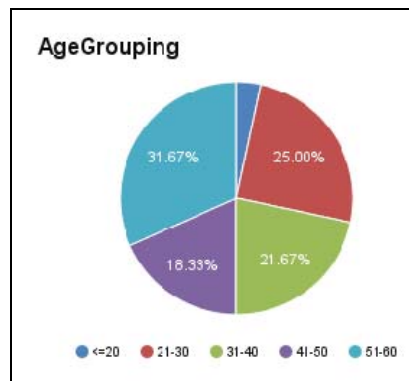


Fig 1: Age Distribution

Out of 60 patients in the study 2(3.33%) were below 20 years of age, 15 (25%) were of 21-30 years age, 13 (21.67%) were of 31-40 years age, 11 (18.33%) were of 41-50 years age, 19 (31.67%) were of 51-60 years age

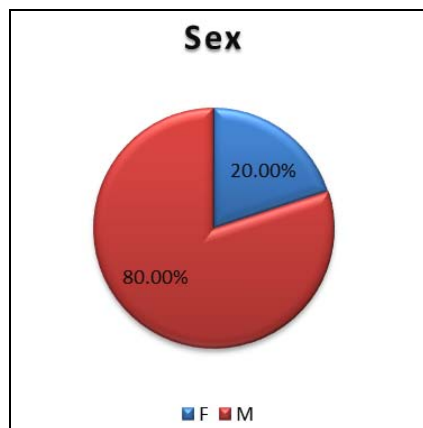


Fig 2: Gender Distribution

Out of 60 patients, no of male patients were 48(80%) and the number of female patients were 12(20%)

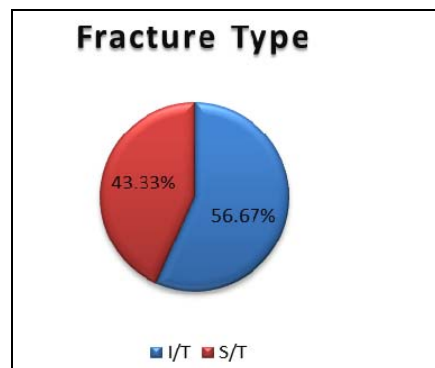


Fig 3: Fracture type

Out of 60 patients, 34 (43.33%) were Inter-trochanteric fractures and 26(56.67%) were Sub-trochanteric fractures

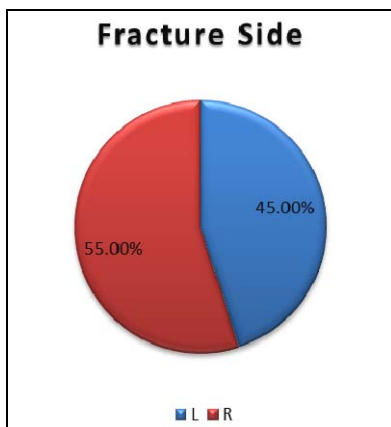


Fig 4: Fracture side

Out of 60 patients, 55% had right sided fractures and 45% had left sided fractures

Table 1: Fracture type and gender

		Sex		Total
		F	M	
Fracture Type	I/T	66.67%	54.17%	56.67%
	S/T	33.33%	45.83%	43.33%
Total		100.00%	100.00%	100.00%

Out of 48 male patients, 54.17% had I/T fracture and 45.83% had S/T fracture

Out of 12 female patients, 66.67% had I/T fracture and 33.33% had S/T fracture

Table 2: Fracture side and gender

		Sex		Total
		F	M	
FractureSide	L	50.00%	43.75%	45.00%
	R	50.00%	56.25%	55.00%
Total		100.00%	100.00%	100.00%

Out of 48 males, 21(43.75%) had Left sided fractures and 27 (56.25%) had right sided fractures.

Out of 12 females, 6 (50%) had left sided fractures and 6 (50%) had right sided fractures.

Discussion

The need for internal fixation and early mobilization of patients with trochanteric fractures of the femur is done not only to reduce the morbidity and mortality rates associated with prolonged immobilization but also to improve the functional result through avoiding malunion and encouraging mobility.

The best treatment for these fractures remains controversial. Various studies comparing intramedullary and extramedullary devices have been conducted and published but they show different results. In my study comparative evaluation between proximal femoral nail and proximal femoral locking plate was done. 30 patients with unstable proximal femoral fractures treated with proximal femoral nail and 30 patients treated with proximal femoral locking plate was evaluated clinico-radiologically. Out of 60 patients 34 were Inter-trochanteric fractures and 26 were Sub-trochanteric fractures. The no of male patients were 48 and the number of female patients were 12. Out of 60 patients 2 were below 20 years of age, 15 were of 21-30 years age, 13 were of 31-40 years age, 11 were of 41-50 years age, 19 were of 51-60 years age.

Conclusion

Incidence of sub trochanteric fracture was high and there was no difference in involvement of side of fracture

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