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FRAGILITY HIP FRACTURES

DR. HAFIZ MUHAMMED RAFIQUE
MBBS, FCPS

DR. AZEEM
MBBS, FCPS (Ortho)

DR. SARDAR ALI
MBBS, FCPS, FRCS

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ABSTRACT... Introduction: Fragility fractures, the major clinical problem have increased in recent decade due to an increase in expected age. There is a tremendous economic burden to manage this problem. The disability increases from 20% before hip fracture to 50% after this even if managed properly. Fragility hip fracture is associated with a 20% reduction in expected survival in best hands. **Objectives:** To study the incidence; types of fractures; treatment options and their outcome. **Design:** A retrospective study. **Setting:** Armed Forces Hospital Southern Region Khamis Mushayt, Kingdom of Saudi Arabia **Period:** From April 1996 to April 2006. **Material and method**: 300 patients were included in the study, both males and females above the age of sixty years presented in Emergency Room with hip fractures due to minor or trivial trauma. Diagnosis was based on clinical and radiological grounds. Additional investigations were made when and where indicated to confirm diagnosis and to assess the patient from anaesthesia and surgical point of view. Internal fixation was the main treatment to see the ultimate outcome. **Results:** The incidence of fragility hip fractures increased with age. Sixty percent of the victims were females. The incidence increased with every passing year being 15% in the last year of study. 93.3% of the fractures were of intertrochanteric type and fixed with engineered metallic device (DHS). **Conclusion:** Prevention or delaying osteoporosis should be the main objective. Once there is fragility hip fracture internal fixation is the appropriate treatment.

Key words: Fragility fractures; osteoporosis; intertrochanteric; hemiarthroplasty; engineered metallicfixation device.

INTRODUCTION

Fragility fractures, the major clinical problem in osteoporosis have increased in recent decade[1]. In western countries, it is estimated that half of all women and one third of all men will sustain a fragility fracture during their life time[2]. The incidence of osteoporotic (fragility) fractures is expected to increase so that by 2050, it is thought that approximately 6.3 million hip fractures will occur globally[2]. The rising burden of these fractures imposes an enormous cost on society[3] and increases morbidity and mortality[4]. A hip fracture is associated with a 20% reduction in expected survival[5].

The disability increases from 20% before hip fractures to 50% after hip fractures even with proper treatment[6]. One third becomes totally dependent, necessitating institutionalization[7]. It is therefore imperative to implement strategies for preventing such fractures in the community[8]. The main diagnostic tools to predict the fragility (osteoporotic) features are bone mass density (BMD), X-rays, bone biopsy and laboratory tests like serum calcium, phosphorus, alkaline prostase and serum proteins[9]. The standard management of these fractures after timely diagnosis is closed or open reduction and internal fixation provided the patient can tolerate the stress of anaesthesia and surgery[10].

The supplementary pharmacological treatment in the form of bisphosphorate; Calcitonin; strontium; calcium and vitamin D is equally important[11,12,13].

Objectives:

To study the incidence, types and sites of fractures, treatment options and their outcome.

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Correspondence Address:
Dr. Hafz Muhammed Rafique, MBBS, FCPS
drrafiq103@yahoo.com

MATERIAL AND METHOD

Inclusion criteria

1. Both males and females above the age of 60 years
2. Hip fractures due to trivial trauma
3. All such patients presenting to Emergency Room.

Exclusion criteria

1. Both males and females below the age of 60 years
2. Hip fractures due to major trauma
3. Patients having hip fracture due to pathological reasons
4. Delayed presentation or maltreated patients

This is a retrospective study of ten years from April 1996 to April 2006 in the Armed Forces Hospital Southern Region, Khamis Mushayt, Kingdom of Saudi Arabia. All the patients, both males and females above the age of sixty years, who were involved in trivial trauma and presented to the Emergency Room were included. Those patients having major trauma or other causes of pathological fractures in the form of multiple myeloma; metastatic bone disease and rickets were excluded. The diagnosis was made by history, clinical examination and radiographs. Further assessment to reach at the final diagnosis of fragility and fitness regarding anaesthesia and surgery was done with laboratory and specific investigations wherever required. After thorough review, the patients were given analgesia and skin traction applied. All the patients were admitted to ward for definitive management.

After further evaluation and optimization, the patients were taken to the Operating Room for close or open reduction and internal fixation at the earliest possible time. The standard post operative treatment in the form of intravenous antibiotics; prophylactic anticoagulation; analgesia and early mobilization either on wheelchair or partial or full weight bearing depending upon the condition of patient and stability of fixation was adopted. Patients were discharged from hospital when considered safe from orthopedic and other associated specialities with regular Outpatient Department follow up. A full record of all this information was maintained on a proforma prepared for this.

RESULTS

Table-I. Incidence of Age, n=300

Age	Cases	%age
60-70 years	40	13.1%
71-80 years	45	15%
81-90 years	95	31.2%
90 & above	120	40%

The incidence of fragility hip fractures increased with advancement of age from 13.1% in age group between 60-70 to 40% between age more than 90 years.

Table-II. Sex Distribution n=300

Sex	No of cases	%age
Male	120	40%
Female	180	60%0

The incidence of fragility hip fractures in female is 60%

Table-III. Yearly Presentation n=300

Years	No of cases	%age
April 1996 – April 1997	20	6.66%
April 1997 – April 1998	12	7.30%
April 1998 – April 1999	20	6.66%
April 1999 – April 2000	21	7%
April 2000 – April 2001	36	12%
April 2001 – April 2002	29	9.66%
April 2002 – April 2003	36	12%
April 2003 – April 2004	39	13%
April 2004 – April 2005	32	10.6%
April 2005 – April 2006	45	15%

The incidence of fragility hip fractures increased with each passing year from 6.66% in first year of our study to 15% in last year.

Table-IV. Distribution of Site of Hip Fracture (n=300		
	No of cases	%age
Neck of fever	20	6.6%
Intertrochanter	280	93.3%
Both	-	-

In hip fractures, the maximum 280 (93.3%) were of intertrochanteric type. The next came fractures of neck of femur 6.6%.

Table-V. Mode of Treatment n=300			
Type of fracture	Treatment option	No of cases	%age
Neck of fever	Replacement device hemi-arthroplasty	20	6.6%
Intertrochanteric	Engineered, metallic device	280	93.3%
Others	-	-	-

All the intertrochanteric fractures were treated with engineered metallic fixation device (DHS) and all the fractures of neck of femur were treated with Austin-Moor prosthesis (hemiarthroplasty). No other internal fixation or conservative treatment was adopted.

Table-VI. Complications (n=300)		
Complications	No of cases	%age
Wound infection	6	2%
Implant failure	3	1%
Mortality	3	1%
Non healing	-	-

Considering the common complications, the wound infection was 2%, implant failure because of different factors was 1% and mortality due to orthopaedic and non-orthopaedic problems remained 1%.

DISCUSSION

The increasing incidence of fragility hip fractures in this study is comparable with another study where there is progressive increase with advancing age maximum being over 70 years[14]. The age distribution in this study is comparable with another study where half of all women and one third of all men sustained fragility hip fractures[2]. The yearly increase in total number and hence percentage of fragility hip fractures in this study is comparable with another study where same trend has been observed[1]. The maximum (93.3%) intertrochanteric femur fractures in this study is nearly comparable with other studies where 63.9% age of fragility hip fractures had involved the same site[15,16].

The treatment option of internal fixation of intertrochanteric fractures with engineered metallic fixation device (DHS) and replacement device (hemiarthroplasty) for fractures neck of femur produced satisfactory results in this study as we are trained and used to this type of management. Same type of treatment option with satisfactory outcome was used in another study[15]. Although studies are also available where some other treatment modality as cannulated screw fixation for impacted or undisplaced fracture of neck of femur or even conservative treatment was adopted[15]. But these are less preferred because of less satisfactory outcome and high rate of non-orthopedic complications in the form of pneumonia; deep vein thrombosis; joints stiffness; muscular atrophy, bedsore etc. due to prolonged bed rest and prolonged hospital stay.

The common complications in the form of wound infection, implant failure and mortality in fragility hip fractures are also comparable with other studies done in this regard[16].

CONCLUSION

The fragility hip fractures are a major clinical problem due to osteoporosis. There is an increasing incidence of these fractures because of increased expected age. In

addition to enormous economic burden, it is a major cause of disability; morbidity and mortality.

The main stress should be on preventive measures. The measures that can reduce or delay osteoporosis should be addressed. Due consideration should also be given to prevent trauma in old people.

Once there is fragility hip fracture timely diagnosis and internal fixation in expert hands should be the main theme.

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"Nothing" is impossible;
I do "Nothing" everyday.

Shakeel Talat