http://www.banglajol.info/index.php/JNINB

Original Article

DOI: https://doi.org/10.3329/jninb.v10i2.83181

Journal of National Institute of Neurosciences Bangladesh,
July 2024, Vol. 10, No. 2, pp. 94-97

ISSN (Online) 2518-6612
ISSN (Print) 2410-8030

Age, Gender and Occupational Profiles of Patients Presented with Unstable Intertrochanteric Fracture (KYLES Type III and IV)

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Abstract

Background: Unstable Intertrochanteric Fracture (KYLES Type III and IV) can occur in different age group of patients with occupational profiles. **Objective:** The purpose of the present study was to observe the age, gender and occupational profiles of patients presented with unstable intertrochanteric fracture (KYLES Type III and IV). **Methodology:** This was a cross-sectional study of patients with intertrochanteric femoral fractures attending at the emergency Department of National Institute of Traumatology and Orthopaedic Rehabilitation (NITOR), Dhaka, Bangladesh during the period of January 2013 to December 2014 for a period of two years. The age, gender and occupational profiles were recorded for this study. All the patients were treated with proximal femoral locking compression plate. **Results:** Fourteen patients were male and 6 patients were female with the aged of 40 to 80 years and mean age was 67.85±11.30 years who underwent internal fixation with the PF-LCP for proximal femoral fractures were reviewed. Male was predominant than female. **Conclusion:** In conclusion, most of the patients are elderly people with the male predominance. *[Journal of National Institute of Neurosciences Bangladesh, July 2024;10(2):94-97]*

Keywords: Occupational Profiles; Unstable Intertrochanteric Fracture; KYLES Type III and IV

Introduction

Intertrochanteric hip fractures account for approximately half of the hip fractures in the elderly; out of this more than 50.0% fractures are unstable[1]. Unstable pattern occurs more commonly with increased age and with low bone mineral density. The fracture commonly occurs through bone affected by osteoporosis. Osteoporosis is a clinical disorder is characterized by an abnormality low bone mass and defect in bone structure, a combination which renders the bone usually fragile and at greater than normal risk of fracture in a person of that age, sex and race. The clinical and radiographic diagnosis is backed up by assessment of bone mineral density (BMP) as measured by DXA of the spine and the hips[2]. BMD values is comparison to both an age and sex matched population (Z score) and also to the peak adult bone mass (T-score). The T-score is in particular allows calculation of relative fracture risk by WHO criteria. T-score of less than -1.0 indicate osteopenia and T-score of less than -2.5 indicate osteoporosis[3].

The presence of osteoporosis in intertrochanteric fractures is important because fixation of the proximal fragment depends entirely on the quality of cancellous bone present. Unstable intertrochanteric fractures are those in which comminution of posteromedial but exceeds a simple lesser trochanteric fragment or those with subtrochanteric extension. The results of unstable fractures are less reliable and have a high rate of failure 8.0% to 25.0% cases[4].

The goal of treatment of any intertrochanteric fracture in the elderly is to restore mobility safely and efficiently while minimizing the risk of medical complications and technical failure and to restore the patient to preoperative status. Restoration of mobility in patients with unstable intertrochanteric fracture ultimately depends on the strength of surgical construct[5]. Trochanteric region of the

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femur is that part which connects the head-neck and shaft at an angle of about 125 degrees. The neck is about 5 cm long. These features facilitate the movement at the Hip joint causing the limb to swing clear of the pelvis[6]. The term trochanteric fracture may be used to describe any fracture in the region that lies approximately between the greater and lesser trochanter[7].

Locking plates may increasingly be indicated for indirect fracture reduction, diaphyseal or metaphyseal fractures in osteoporotic bone, bridging severely comminuted fractures, and the plating of fractures where anatomical constraints prevent plating on the tension side of the bone. Conventional plates may continue to be the fixation method of choice for periarticular fractures which demand perfect anatomical reduction and to certain types of non-unions which require increased stability for union[8].

Over the last few years, there has been a shift in the principles of management of these fractures from rigid anatomic reduction to relative biological fixation which preserves the vascularity of bone fragments and enhances their callus- forming abilities[9]. Biological fixation, in comparison to traditional open plating, has produced good results for these fractures. At present, there are only a few published studies that report the use of PF-LCPs for treating peritrochanteric and subtrochanteric fractures. The purpose of the present study was to assess the age, gender and occupational profiles of patients presented with unstable intertrochanteric fracture (KYLES Type III and IV).

Methodology

Study Design and Population: This non-randomized clinical trial was conducted in the Department of Orthopedic Surgery in National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), Dhaka, Bangladesh from January 2013 December 2014 for a period of two years. All the patients with the age group of more than or equal to 18 years and both male and female who were presented with intertrochanteric femoral fractures attending at the emergency of NITOR were selected as study population. Purposive sampling (nonrandom sampling) according to availability of the patients and strictly considering the inclusion and exclusion criteria. Patients with fracture dislocation or age with more than or equal to 18 years, non-united fracture, active or latent infection, pathological fracture, open fracture were excluded from this study.

Study Procedure: The details of demographic profiles were recorded for the study population. These were age group, the gender and occupational profiles were collected from the all the patients.

Statistical Analysis: Statistical analysis was performed by Windows based software named as Statistical Package for Social Science (SPSS), versions 22.0 (IBM SPSS Statistics for Windows, Version 22.0. Armonk, NY: IBM Corp.). Continuous data were expressed as mean, standard deviation, minimum and maximum. Categorical data were summarized in terms of frequency counts and percentages.

Ethical Issue: Prior permission was taken from Ethical Review Committee, National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), Dhaka, Bangladesh to conduct this study. The Study has been evaluated & accepted by Thesis committee of NITOR and other ethical issues such as inform written consent from patient or from legal guardian after duly informed about the procedure of treatment, anticipated results, possible advantages, disadvantages and complications of the operation.

Results

A total of 20 patients were selected for this study at NITOR from January 2013 to December 2014. All the patients were clinically and radiologically investigated. Every patient was followed up regularly up to 6 months. Among 20 patients, highest frequency of patients was in the age 71-80 years 50(50.0%), rest of the patients 30.0% were in the age group 61-70 years, 10.0% patients were in 51- 60 years and 10.0% were in 40-50 years. Minimum age 40 and maximum age 80 years (Table 1).

Table 1: Age Distribution among the Study Population (n=20)

Age Group	Frequency	Percent
40 to 50 Years	2	10.0
51 to 60 Years	2	10.0
61 to 70 Years	6	30.0
71 to 80 Years	10	50.0
Total	**20**	**100.0**
Mean±SD (Range)	**73.3±10.5 (40 to 80)**	

Regarding the sex distribution of the study patients. Male was found 14 (70%) Female was found 06 (30%) in study group. Male: female ratio was 2.3:1 (Table 2).

Table 2: Gender Distribution of the Study Population (n=20)

Gender	Frequency	Percent
Male	14	70.0
Female	06	30.0
Total	**20**	**100.0**

Regarding the occupation status of the study patients. Maximum patients were farmer 40.0%, rest of the respondents 30.0 % patients were housewife, 20.0% patients were labour and 10.0% were service holder (Table 3).

Table 3: Occupational Status among the Study Population (n-20)

Occupational status	Frequency	Percent
Service holder	2	10
Farmer	8	40
Housewife	6	0
Labourer	4	20
Total	**20**	**100.0**

Discussion

Intertrochanteric fractures especially comminuted fractures are difficult to treat in all over the world. PF-LCP has both compression and bridging technique. So no disturbance of biological environment occurs. Screws are locked to the plate. So stability is maintaining at angular stable screw plate interface and it is difficult for one screw to pull out unless all adjacent screws fail. Although it is costlier than traditional plates, but it has less incidence of nonunion, malunion or other complications with better functional outcome[10]. The PF-LCP is stated to be more suitable for stable and osteoporotic intertrochanteric fractures.

Present prospective observational study was conducted to evaluate the functional outcome of fixation of unstable intertrochanteric fracture fixation with proximal femoral locking compression plate. Intertrochanteric hip fractures account for approximately half of the hip fractures in the elderly; out of this more than 50% fractures are unstable[11].

In the light of the findings of the present study, it can be concluded that patients of trochanteric fracture fixed by proximal femoral locking compression plate (PF-LCP) usually remain free from postoperative pain and infection, enjoys 100.0% fracture union by 24 weeks of postoperative follow up[12]. The patients fixed with PF-LCP also enjoy wide range of hip and knee movements by 24 weeks of postoperative period. Therefore, PF-LCP can be considered as a rational choice in the treatment of complex unstable intertrochanteric fracture of femur.

In present study the highest frequency of patients was in the age 71 to 80 years (50.0%), rest of the patients (30.0%) were in the age group 61 to 70 years. Minimum age 40 and maximum age 80 years. A similar study[12] has reported an eight-fold increase in trochanteric fractures in men of 80 years and women over 50 years of age. A higher proportion of patients in PF-LCP were farmer (40.0%), rest of the respondents (30.0%) patients were housewife, 20.0% patients were labour and 10.0% cases were service holder. About 14(70.0%) patients were male and 6(30.0%) patients were female. Male and female ratio was 2.3:1. All the female patients were housewives.

In present study, the mean age was 67.85±11.30 years, highest frequency of patients was in the age 71 to 80 years 50(50.0%), rest of the patients 30.0% were in the age group 61-70 years, 10.0% patients were in 51 to 60 years and 10.0% were in 40 to 50 years. Minimum age 40 and maximum age 80 years. About 4(70.0%) patients were male and 6(30.0%) patients were female. Maximum patients were farmer 40.0%, rest of the respondents 30.0% patients were housewife, 20.0% patients were labour and 10.0% were service holder. In a study at NITOR by Zaman[13] stated that 50.0% patients above 50 years and 50.0% patients below 50 years in DCS and PF-LCP each group, male patients were predominant, 70.0% cases in DCS and 80.0% in PF-LCP groups, 20.0% cases were farmer, 30.0% cases were housewife which consisted with our study.

We recognize that this study has several limitations. The study may not be generalizable in large scale. was conducted with a small sample size. Due to short study period, it was very difficult to obtain necessary data from the patient by follow up. Because sometimes patients may not be interested in follow up at a fixed interval. However, all the procedures were performed in expert hands following standard methods of close reduction and internal fixation.

Conclusion

In the light of the findings of the present study, it can be concluded that majority of the study population were in the elderly with the mean age of more than 65 years. Furthermore, male is predominant than female. In occupational profiles, the most common is farmer; however, the rest of the patients are housewife, labourer and service holder. Further large-scale nation-wide survey should be carried out to get the real scenario.

Acknowledgements
None

Conflict of interest
Other than technical and logistic support from the scientific partner the investigators did not have any conflict of interest in any means.

Financial Disclosure
This research project was not funded by any organization.

Contribution to authors
Islam MA, Salam A conceived and designed the study, analyzed the data, interpreted the results, and wrote up the draft manuscript. Roy MK, Islam MN, Islam SS, Laizu IA involved in the manuscript review and editing. All authors read and approved the final manuscript.

Data Availability
Any inquiries regarding supporting data availability of this study should be directed to the corresponding author and are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate
Ethical approval for the study was obtained from the Institutional Review Board. As this was a prospective study the written informed consent was obtained from all study participants. All methods were performed in accordance with the relevant guidelines and regulations.

How to cite this article: Islam MA, Rahman MT, Salam A, Roy MK, Islam MN, Islam SS, Laizu IA. Age, Gender and Occupational Profiles of Patients Presented with Unstable Intertrochanteric Fracture (KYLES Type III and IV). J Natl Inst Neurosci Bangladesh, 2024;10(2):94-97

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Article Info
Received on: 7 April 2024
Accepted on: 24 May 2024
Published on: 1 July 2024

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