

Epidemiologic Pattern Of Treated Hip Fractures At A Nigerian North-Eastern Hospital

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Abstract

Background the rate of hip fractures in developing countries like ours is rising and the low socioeconomic status of our patients makes affordability of some treatment options difficult. The purpose of this study was to analyze the epidemiologic pattern of treated hip fractures.

Materials and methods a single center retrospective cross sectional study conducted at abubakar tafawa-balewa university teaching hospital (atbuth),bauchi .data of 60 patients over the age of 18 years with hip fractures (femoral neck, intertrochanteric and sub trochanteric fractures) who had operative intervention between 1st september 2019 and 31st august 2020.

Results the mean age of studied patients was 65.7±16.1 years, with age ranging from 19-101 years. M:f ratio was 1.2:1 across all age groups and 1:1.4 amongst those >60 years with 50 patients (83.3%) unemployed/underemployed. 51 patients (85%) presented > 1 week after injury with 24 patients (40%) sustaining hip fractures from low energy trivial indoor fall and 28 patients (46.7%) mostly younger sustaining fractures from high energy motor vehicular accident (mva). The prevalence rate for femoral neck, intertrochanteric and subtrochanteric fractures were 32(53.3%),17(28.3%) and 11(18.3%) respectively.

Conclusion the epidemiologic burden of hip fractures is rising in developing countries like ours. Significant number of our patients with hip fractures still present late to the hospital owing to low socioeconomic reasons and challenges of affordability. Unlike before, various surgical treatment options are now easily available.

Key words: epidemiologic pattern, treated, hip fractures

Date of Submission: 22-02-2024

Date of Acceptance: 02-03-2024

I. Introduction

Hip fractures are serious injuries that are common in the elderly with tremendous impact on the individual and society in general with occasional high mortality(1) . Its annual incidence is 0.2-3.8 per 1000 people worldwide(2) and with aging population, the incidence of these fractures is steadily increasing (3,4). The incidence of hip fractures is also increasing among younger individuals secondary to a rising incidence of high energy trauma. Hip fractures comprises of femoral head,femoral neck,intertrochanteric and subtrochanteric fractures ,with femoral neck fracture being the most common . Femoral neck fracture is more common in older people, with an incidence of around 100,000 per year in Germany, and approximately 30% of all the women are affected (5).

The incidence of hip fractures in a developing country like ours is rising, and most patients present late after failed intervention from traditional bone setters (TBS). The purpose of this study is to present the epidemiologic burden of those presenting with hip fractures in our center.

II. Materials And Methods

The study was a single center retrospective cross sectional study conducted at Abubakar Tafawa-balewa Teaching Hospital (ATBUTH), a tertiary referral centre located in North-eastern Nigeria. A 1 year retrospective data of all skeletally matured patients that presented with any of the hip fractures (femoral head, neck, intertrochanteric or sub trochanteric) , and have had surgical treatment with either cannulated screw, bipolar hemiarthroplasty(BHA), Proximal femur locking compression plate(PFLCP) or dynamic hip screw was collated and analyzed.

A formal ethical approval was obtained from the ethics committee following which all patients that have met the inclusion criteria and presented between 1st September 2019 to 31st August 2020 were identified from the records department of the hospital. Inclusion criteria included; skeletally matured patients, who were either pre-

fracture independent community ambulant or community ambulant with assisted devices, with either fresh hip fracture or neglected i.e presenting after 1 month of fracture (6).

The data collected included; patients age, gender, mechanism of injury, hip affected, fracture site, and duration before presentation. Hip fracture was defined by the clinical and radiological evidence of fracture line. Data analysis was done using SPSS version23 software. Categorical data was presented as descriptive statistics using frequency, percentages, mean and standard deviations.

III. Results

The records of 60 patients whom have satisfied the inclusion criteria were retrospectively analysed. The mean age of study participants was 65.7 ±16.1 years with age ranging from 19-101years. Males accounted for 55.0% of patients with a M:F ratio of 1.2:1 (table1). Sixty (60) % of the patients with hip fractures were older than 60 years with the age range of 61-75 years accounting for the highest number (table 1). The duration of hip fractures from time of trauma correlates with the socioeconomic status of those patients, as majority 34(56.6%) presented with neglected hip fractures i.e presentation more than 4 weeks from the time of injury (table 1) and this number rises to 51patients (85%) when presentation beyond 1 week is considered.

Significant number of patients were unemployed 15(25.0%), while another category comprising of retirees, local artisans, and peasant farmers making up 35(58.3%) were underemployed with no formal source of regular income (table 2). Sixty-two (62%) of the patients had atleast a secondary level of education and can be considered literate.

Twenty-four patients (40%), sustained hip fractures from trivial low energy fall, while 28 patients (46.7%) mostly younger sustained theirs from high energy MVA (table 3). Femoral neck fractures were the most common seen in 32(53.3%) patients followed by intertrochanteric fractures (28.3%) and subtrochanteric fractures (18.3%) (table 4). Age related Femoral and intertrochanteric fractures in patients >60 years rises to 88% (fig 1).

Table 1. Sex distribution

AGE(years)Mean 65.7±16.1	MALE(N=33)	FEMALE(N=27)	Total
16-30	2(3.3)	0(0)	2(3.3)
31-45	8(13.3)	2(3.3)	10(16.6)
46-60	8(13.3)	4(6.6)	12(20)
61-75	7(11.6)	12(20)	19(31.6)
76-90	7(11.6)	8(13.3)	15(25)
>90	1(1.6)	1(1.6)	2(3.3)
Duration presentation (%)			
< 1week	7(11.6)	2(3.3)	9(15)
1-4 weeks	6(10)	11(18.3)	17(28.3)
4- 12 weeks	14(23.3)	6(10)	20(33.3)
>12 weeks	6(10)	8(13.3)	14(23.3)

Table 2: Occupation of patients treated of hip fractures

OCCUPATION	FREQUENCY	PERCENTAGE
CIVIL SERVANT	10	16.7%
RETIREE	19	31.7%
ARTISAN	7	11.7%
COMMERCIAL MOTORCYCLE RIDER	3	5.0%
FARMER	6	10.0%
UNEMPLOYED	15	25.0%
N	60	100%

Table 3. Mechanism of injury of hip fracture

MECHANISM OF INJURY	MALE	FEMALE	TOTAL	M:F
MVA	20(71.4%)	8(28.6%)	28	2.5:1
INDOOR TRIVIAL FALL	10(41.6%)	14(58.3%)	24	1:1.4
OUTDOOR FALL	3(37.5%)	5(62.5%)	8	1:1.6
TOTAL	33	27	60	

Table 4: Frequency table for hip fractures at presentation

RADIOLOGIC DIAGNOSIS	Frequency(N)	Percentage
FEMORAL NECK FRACTURE	32	53.3
INTERTROCHANTERIC FRACTURE	17	28.3

SUBTROCHANTERIC FRACTURE	11	18.3
N	60	100

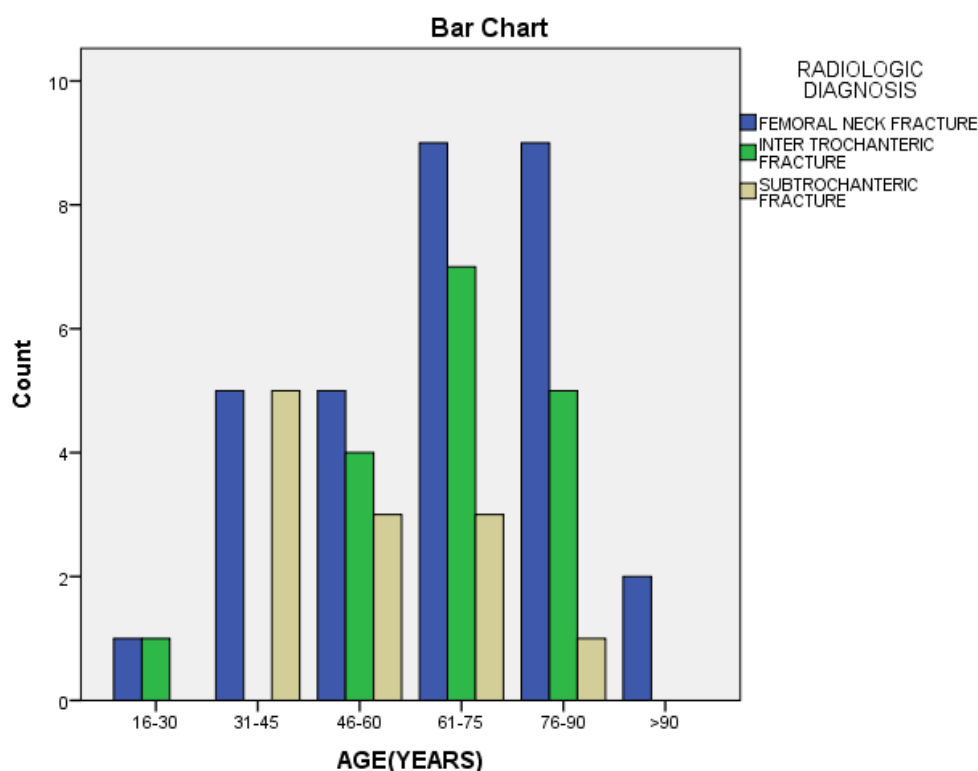


Fig 1: Chart showing radiologic diagnosis by age

IV. Discussion

The epidemiologic pattern of treated hip fractures especially with regards to the prevalence of the various fractures, is still a huge subject of research to Orthopaedic surgeons in low to middle income countries (LMIC) such as Nigeria.

The mean age of the study participants was 65.7±16.1 years with males accounting for 55.0% and a M:F ratio of 1.2:1 which is in tandem with studies that included hip fractures arising from both high energy (MVA) and low energy (trivial indoor fall) mechanism. Daniel et al(2) reported a mean age of 69.7±15 years and Shah et al(7) showed that M:F ratio could be as high as 16:4. Amongst those who sustained hip fractures from low energy trivial indoor fall, the M:F ratio was 1:1.4 with 58.3% being women and this is comparable with studies on osteoporotic hip fractures including lee et al(8) and Frihagen et al(9). Most femoral neck and intertrochanteric fractures in the elderly from this study resulted from a trivial indoor fall, while 80% of similar fractures in the young were from MVA with similar result reported by Ravi et al(10) and lee et al(8).

51 patients(85%) of the studied population presented with hip fractures > 1 week from injury and this is comparable to another Nigerian study by Daniel et al(2) in which 71.4% presented after 3 weeks. The high rate of neglected hip fractures in our environment can be traced to the low socioeconomic status of our patients with issues of affordability and the influence of traditional bone setters.

The study showed the rate of femoral neck fracture across all age group at 53.3% irrespective of the mechanism of injury followed by intertrochanteric and subtrochanteric fractures at 28.3% and 18.3% respectively with age specific rate of femoral and intertrochanteric fractures in those older than 60 years rising to 88.8% comparable to results reported by Pillai et al (11) and Zelenka et al(12).

V. Conclusion

The epidemiologic burden of hip fractures is rising in developing countries like ours. Significant number of our patients with hip fractures still present late to the hospital owing to low socioeconomic reasons and challenges of affordability. Unlike before, various surgical treatment options are now easily available.

Acknowledgement we express our sincere gratitude to all the staff of the orthopaedic department at Abubakar Tafawa-Balewa University Teaching Hospital.

Compliance with ethical standard

Conflict of interest The authors declare that they have no conflict of interest.

Ethical approval Ethical approval was obtained from the ethical board of Abubakar Tafawa-balewa University Teaching hospital, Bauchi to obtain the data of patients that presented with hip fractures.

Informed Consent N/A

Author contribution All authors have been directly involved with the various aspects of the study. We attest to the fact that all authors have participated in the research, read the manuscript, attest to the validity and legitimacy of the data.

Funding No benefits in any form was received from any commercial party directly or indirectly related to this work.

Data availability statement The data that support the findings of this study are available on request from the corresponding author.

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