

THE EPIDEMIOLOGY, MANAGEMENT AND COMPLICATIONS OF TIBIA FRACTURES TREATED IN MAJOR HOSPITALS IN IMO STATE, SOUTHEAST NIGERIA.

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ABSTRACT

Tibia fractures constitute one of the most common types of trauma in Imo state. A retrospective epidemiological study was conducted in three major hospitals in Imo state to evaluate the distribution and pattern of tibia fractures treated in the state between 2012 and 2016. Information was sourced from medical records at Federal Medical Centre, Owerri, Christina Specialist Hospital, Owerri and Imo State University Teaching Hospital, Orlu respectively. Out of a total of 150 cases treated, 79 (52.7%) were males while 71 (47.1%) were females. The most frequently affected group were patients aged 25-34 years (36, 24%) followed by people aged 15-24 years (33, 21.3%). The most common cause of tibia fracture was road traffic accidents (RTAs) (52%) followed by fall from a height (44%). Majority (83, 55%) of the cases were open fractures while 53 (35%) were closed fractures. The study concludes that tibia fractures affected more male than female people in their youthful age and was mainly due to RTAs. Concrete measures should be taken to reduce the incidence of tibia fractures in the state and its consequences.

Key words: Tibia, fractures, epidemiology, Imo state, Nigeria.

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INTRODUCTION

Tibia fracture remains one of the most common complications of various forms of trauma in Nigeria. Several authors^(1,2,3,4,5) have previously reported on the epidemiology, complications and treatment modalities used in the management of these fractures in different centres in the country.

Studies conducted outside Nigeria by Larsen et al⁽⁶⁾ reported similar findings with little differences that may have resulted from socioeconomic factors. Similarly, a study carried out in Sweden by Wennergren⁽⁷⁾ further showed that tibia fracture

constituted one of most common complications of trauma. Ifesanya et al (2002)³ in their study in Southwestern Nigeria, reported a peak age incidence of 30-40 years with Road Traffic Accident (RTA) as the most frequent cause of tibia fractures (38%), followed by fall from a height (16%).

Male patients were the most affected. In his own report on tibia fractures involving people who participated in recreational sports particularly football, Nwosu et al, (2019)⁴ stated that males were mainly affected and the right tibia was predominantly involved (91.9%).

Poorly managed fractures (as is the case most often), results to lower limb amputations⁽⁹⁻¹⁴⁾ and other debilitating consequences hence the aim of the present study was to evaluate the epidemiology, management and complications of tibia fractures treated in major hospitals in Imo State, Southeastern Nigeria.

MATERIALS AND METHODS

Study Area: The study was carried out in two hospitals based in Owerri, Imo State Capital namely the Federal Medical Centre (FMC) and a private Hospital, Christina Specialist Hospital Owerri. Data was also collected at Imo State University Teaching Hospital, Orlu.

Study Design: This was a retrospective descriptive epidemiological study.

Study Population: A total of 150 case notes of patients who were treated of tibia fractures within a five year period (2012 to 2016) were retrieved from the Medical Records Department of the three hospitals used for the study. Relevant demographic and epidemiological data were extracted

Statistical Analysis: SPSS Version 20 was used and simple statistical methods such as rates, percentages and ratios were used to interpret the results.

RESULTS

Out of 150 case notes of patients with tibia fractures analyzed, 79 (52.7%) were males while 71 (47.1%) were females. The most frequently affected age group was 25-34 years (24%) (Table 1). Commercial drivers were the most affected (29.3%) followed by traders (23.3%) (Table 2). Road traffic accident (RTA) was the most frequently associated cause (52%) followed by fall from a height (44%) (Table 3).

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Table 1: Age Distribution of Tibia Fractures treated at Major Government and Private Hospitals in Imo State.

Age Range	Frequency	Percentage (%)
15-24	33	21.3
25-34	36	24
35-44	26	17.3
45-54	26	17.3
55-64	19	12.7
>64	11	7.3
Total	150	100

Table 2: Occupational Distribution of Tibia Fractures treated in Major Government and Private Hospitals in Imo State, Southeast Nigeria.

Occupation	Frequency	Percentage (%)
Commercial Drivers	44	29.3
Traders	32	21.3
Civil Servants	17	11.3
Farmers	24	16
Students	33	22
Total	150	100

Table 3: Causes of Tibia Fractures treated in Major Government and Private Hospitals in Imo State, Southeast Nigeria.

Cause	Frequency	Percentage (%)
RTA	90	60
Fall from a Height	40	26.7
Gunshot Injury	10	6.7
Others	10	6.7
Total	150	100

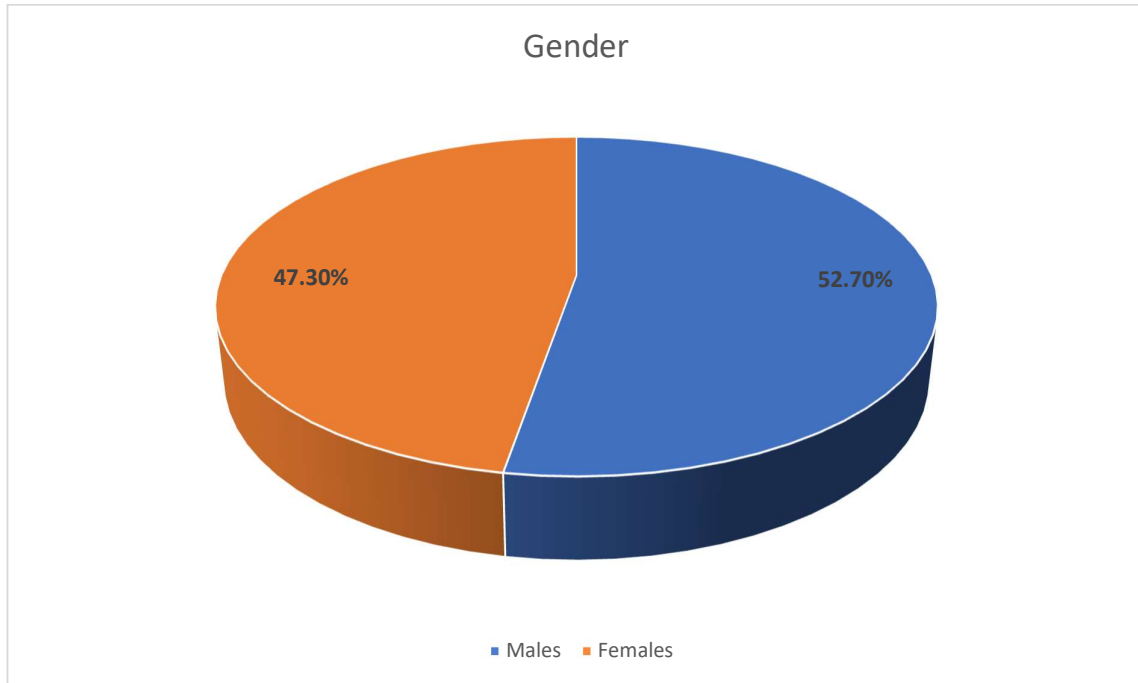
Table 4: Management Techniques used for Tibia Fractures in Major Government and Private Hospitals in Imo State Southeastern Nigeria

Management	Number	Percentage (%)
Traction	23	15
Plaster cast	47	31
Internal Fixation with plates and screws	44	30
Intramedullary Nailing	36	24
Total	150	100

Table 5: Associated Complications of Tibia Fractures treated in Major Government and Private Hospitals in Imo State, Southeast Nigeria.

Complications	Number	Percentage (%)
Mal union	4	18.2
Delayed union	2	9.1
Infection	4	18.2
Gangrene	4	18.2
Joint Stiffness	2	9.1
Pressure ulcers	6	27.3
Total	22	100

Figure 1 Pie chart: Gender Distribution of Tibia Fractures treated in Major Hospitals in Imo State, Southeastern Nigeria.



DISCUSSION

The present study reported the peak age incidence of tibia fractures to be 25-34 years (Table 1). Some previous studies ^(2,3,4) presented similar reports. This age group represents the productive and reproductive group in every society including Nigeria, thus highlighting the importance of tibia fractures in the economic growth of the society as it contributes to high morbidity and mortality thereby leading to loss of human labour and productivity. On the contrary, some studies conducted abroad, associated tibia fractures to older people ⁽⁶⁾. Most of the evaluated fractures occurred during walking, indoor activities and sports. This observation may have been linked to high incidence of osteoporosis and pathological fractures which may not be too prevalent in our society here due to difference in our peoples social habits.

More males (52.7%) were involved in tibia fractures than females (47.3%) (Fig 1). This finding has been collaborated by virtually all previous authors in available literature ^(1,2,5,6). Njoku et al, (2020)⁵ reported all males in their own study. This finding is not surprising in our society where males engage in more hazardous jobs than women. Activities such as commercial driving, tree climbing, shootings etc are

often engaged by men more than their female counter parts. This may also explain why commercial vehicle drivers accounted for the majority (29.3%) of victims of tibia fractures in the study area followed by farmers (22%) (Table 2). Commercial drivers are also the most frequent users of roads and are often involved in road traffic accidents. In our society, most peasant farmers are often involved in tree climbing and other injury prone activities which may lead to falls leading to fracture. Other factors that may expose commercial drivers to more trauma and hence fractures include reckless driving, intoxication, drug abuse and bad road network.

Table 3 shows that road traffic accidents (RTA) was the most frequent cause of tibia fracture in Imo State (60%) followed by fall from heights (26.7%). Several previous studies ^(2,3,5,16) reported RTAs to be the most frequent cause of tibia fractures. Our previous study¹⁸ showed that RTAs occurred most in rainy season (specifically July) and also on Saturdays (weekends). During rainy season, visibility is usually poor and coupled with poor road network in our society, RTAs are bound to occur. This may explain the greater involvement of commercial drivers in RTAs and fractures since they are the most frequent

users of roads. Farmers came second after drivers possibly as a result of their engagement in tree climbing that may lead to falls. Some previous studies^(4,6,15) have also reported that tibia fractures were as a result of sports injuries especially football. This may explain the involvement of students (16%) most of whom engage in amateur sports without shin guard. Our previous study¹⁸ also showed that the lower limb was the most frequently affected in RTAs.

Table 4 shows the different treatment modalities used in the various centres investigated. Plaster cast technique was the most frequent method used (31%) followed by Internal fixation with nails and screws (30%). Intramedullary reduction was also prominent. Fracture treatment method may vary according to the centre visited, the facilities available and the skill of the surgeon involved. Table 5 shows the various complications encountered in tibia fractures. Among these complications was gangrene. Okenwa et al (2015)¹⁷ reported that the most common cause of limb amputation was gangrene, which most of the times resulted from late presentation and the activities of traditional bone setters. Most of the patients involved ended up with limb amputations. Malunion and delayed union were also observed showing that tibia fracture is a significant cause of disability in the study area.

Fractures generally contribute significantly to morbidity and mortality in Nigeria. Often times, people who are involved in fractures seek help from traditional bone setters who mismanage these injuries with resultant complications such as bone decay, malunion, limb shortening or even death. Eventually, some of the victims of tibia fractures end up with limb amputations because of late presentation to hospitals^(8,9,10) thereby increasing the burden of the few rehabilitation centres available in the State.

In conclusion, tibia fracture is a cause for concern in Imo State and all efforts should be geared towards reducing the incidence through proper road construction and maintenance, regular training and re-training of commercial and private road users and control of illicit drug use.

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