

# Limb Trauma in a University Teaching Hospital Setting

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## Abstract

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### Background

Imo State University Teaching Hospital is located in Orlu, a sub-urban town in Imo State, South-Eastern Nigeria. With a high prevalence of road traffic crashes commonly involving motor bikes used for commercial purposes, trauma appears to be assuming epidemic proportions.

### Aim

The aim of the study was to examine the causes of trauma involving the upper and lower limbs seen at the Imo State University Teaching Hospital, Orlu, determine the causative factors, and the treatment given.

### Patients and Methods

The study was a 12 month retrospective study of the cases of limb trauma in adults that presented at the accident and emergency (A&E) department of the hospital.

### Results

Two hundred cases of trauma involving the upper and lower limbs were seen in the A&E department within the period of the study. Road traffic crashes accounted for most of the cases seen (78%), while soft tissue injuries were the commonest injury type seen (54%). Treatment given included wound care (46%), closed reduction and casting (9.4%), as well as open reduction and plating (3.5%). Twenty percent (20%) of the patients left the hospital against medical advice. Of the patients that left against medical advice, 87% had fractures as their primary diagnosis.

### Conclusion

Majority of the limb trauma cases were as a result of road traffic crashes; thus efforts should be directed at improving safety on our roads to reduce the burden of trauma on the health care system. There is also a need to create awareness in the community on the role of orthodox medicine in the management of fractures.

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**Key Words:** Limb, trauma, sub-urban

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## Introduction

Trauma is one of the leading causes of morbidity and mortality worldwide<sup>1,2</sup>. This often is associated with a huge economic loss, both to the individual and the society as trauma usually involves the young and active age group which is the economic life wire of any community<sup>3-7</sup>. Road traffic crashes have been shown to account for majority of trauma cases seen in Nigeria<sup>2,3,8,9</sup>. Also from data made available by the American College of Surgeons Committee of trauma, motor vehicle crashes account for the majority of injuries and deaths in 70% of the 39 countries for which data are available<sup>10</sup>. According to the WHO each year about 1.2 million people are killed and 50 million are

injured in road traffic crashes<sup>11</sup>. The organization further projected that these figures will increase by about 65% over the next 20 years.

The limbs have been reported to be among the most commonly injured parts of the body following road traffic crash<sup>2,3</sup>. The involvement of the limbs is even thought to be higher in our environment where motor cycle crashes account for a significantly high proportion of road traffic crashes. This is due to the fact that motorcycles still constitute a major means of transportation in our society<sup>7,12</sup>.

The importance of the limb in defining the productivity of an individual cannot be overemphasized. The pattern of the injuries

the limbs, as well as the adequacy of treatment affects the functional outcome of treatment significantly. The aim of the study was to ascertain the pattern of limb trauma seen in a teaching hospital setting, determine the causative factors, and the mode of treatment.

### Patients and Methods

This was a retrospective study involving all adult patients with trauma of the upper or lower limb as their primary diagnosis and who were treated in the accident and emergency department of the hospital. The period of study was between 1<sup>st</sup> January, 2006 and 31<sup>st</sup> December, 2006.

The patients were identified in the accident and emergency (A&E) department records and their case notes retrieved from the medical records department. They were analyzed for socio-demographic details, cause of injury, type of injury, and nature of treatment given.

Data were presented as tables. The computer software used for analysis was SPSS (Statistical Package for Social Sciences), version 11.

### Results

During the period under review, 546 cases of trauma involving adult patients were seen and managed in the accident and emergency unit. Of these, 200 cases (36.6%) involved the limbs. Majority of the patients were males (73%). The age range was between 18 and 100 years; with the 18- 29 and 30-41 age categories collectively accounting for 70.5% of the cases (Table 1).

**Table 1:** Age Distribution.

Age (years)	Frequency	%
18 - 29	78	39
30 - 41	63	31.5
42 - 53	33	16.5
54 - 63	7	3.5
>64	18	9
Unknown	1	0.5
<b>Total</b>	<b>200</b>	<b>100</b>

Road traffic crash was the commonest cause of injury (78%). See table 2.

Motorcycles were involved in 65% (102) of the road traffic crashes while motor vehicles were involved in the remaining 35% (54 cases). Civilian gunshot and physical assault accounted for 33 (16.5%) cases.

The commonest injuries seen were soft tissue injuries, 111 cases (54.7%). Fractures were seen in 39.4% of the cases, with the lower limb fractures

accounting for 66.7% of these. Some patients had a combination of injuries (table 3).

Wound care was the treatment given in 40% of the cases. This included dressing changes (67), minor suturing (13), skin grafting (3), and flap cover (2).

**Table 2:** Causes of Injury.

Injury Cause	Frequency	%
Road traffic crash	156	78
1) Motor-cycle crash: 102		
2) Motor cycle crash: 54		
Gun shot	9	4.5
Assault	24	12
Fall	4	2
Sports	1	2
Burns	2	1
Work accident	1	0.5
Domestic explosion	1	0.5
Not stated	2	1
<b>Total</b>	<b>200</b>	<b>100</b>

**Table 3:** Diagnosis.

Diagnosis	Frequency	%
Soft tissue injuries	111	54.7
Fractures: Upper limbs	18	8.9
Lower limbs	49	24.1
Combined	13	6.4
Dislocations: Upper limbs	4	2
Lower limbs	6	3
Combined	1	0.5
Traumatic amputations:		
Upper limbs	1	0.5
Lower limbs	0	0.5
<b>Total</b>	<b>203</b>	<b>100</b>

Nine patients (4.2%) had internal fixation of fractures, while 39 patients (18.3%) left against medical advice. Four patients were brought in dead (Table 4).

Fracture was the diagnosis in 87.2% of the cases that left against medical advice (table 5).

Table 6 shows that 53.3% of the closed fractures and only 11.8% of the open fractures left against medical advice.

**Table 4: Treatment.**

Treatment	Freq.	%
Wound care: Dressing	67	31.5
Suturing	13	6.1
Skin grafting	3	1.4
Flap cover	2	1
Manipulation under anaesthesia	10	4.7
Manipulation and casting	24	11.3
ORIF	9	4.2
Traction	2	1
External fixation	4	1.9
Amputation	3	1.4
Percutaneous k-wire fixation	1	0.5
Hermiarthroplasty (hip)	1	0.5
Arm sling	1	0.5
Drugs only	30	14.1
LAMA	39	18.3
Brought in dead	4	1.9
<b>Total</b>	<b>213</b>	<b>100</b>

Key: ORIF: Open reduction internal fixation.  
LAMA: Left against medical advice

**Table 5: LAMA by Diagnosis.**

Diagnosis	Frequency	%
Fractures: Closed	32	82.1
Open	2	5.1
Others	5	12.8
<b>Total</b>	<b>39</b>	<b>100</b>

Key: LAMA- Left against medical advice

**Table 6: Proportion of Fracture Cases Managed in the Hospital.**

Fractures	Frequency	%
Managed in the hospital		
Open #s	15	18.8
Closed #s	28	35
LAMA: Open #s	2	2.5
Closed #s	32	40
BID	3	3.8
<b>Total</b>	<b>80</b>	<b>100</b>

Key: LAMA- Left against medical advice  
BID- Brought in dead

## Discussion

In this study, 36.6% of all cases of trauma seen in the accident and emergency unit affected the limbs. This is significant and corroborates the other studies where the limbs were reported to be the most commonly involved part of the body in traumatic injuries<sup>2,3</sup>. The study also shows that the younger age group is mostly involved in traumatic injuries as highlighted by other studies<sup>3,4,13</sup>. This shows the enormity of the problem as this is the productive age group in the society.

Like in similar studies in our environment, road traffic crashes accounted for a significantly higher proportion of these injuries<sup>7, 12</sup>. Motor cycles were involved in 65% of these cases. This is high when compared to studies from Western parts of the country. Thanni et al reported that motor vehicles were responsible for 79% of road traffic crashes, while motor cycles accounted for only 6.2% of cases<sup>2</sup>.

Studies from China however showed that bicycles were involved in 70% of cases<sup>14</sup>. The high prevalence of road traffic crashes involving motor cycles is possibly due to the fact that they are very popular means of transportation in Orlu and environs. The susceptibility of the limbs in crashes involving motor cycles has been established<sup>15</sup>. This brings to the fore the importance of the use of limb protection gears in motor cycle users.

Injuries resulting from civilian gunshot and physical assault accounted for 16.5% of the cases; this level of violence in supposedly peace time is quite worrisome.

The low level of work accidents may not be unconnected with the low level of industrialization in our environment.

Soft tissue injuries and fractures were the commonest injuries seen. This is similar to results from other centers in Nigeria<sup>1,16</sup>. Most of the isolated soft tissue injuries were minor injuries that did not require in-patient management. Injuries involving the bones and joints affected the lower limbs much more than the upper limbs. This may be due to the fact that motor cycle crashes accounted for most of the injuries.

A significant proportion of the fracture cases opted for treatment by traditional bone setters. This was especially so with the closed fractures where 32 (53.3%) of the 60 patients with closed fractures left against medical advice. On the other hand 2 (13.3%) of the 17 cases of open fractures opted for treatment by traditional bonesetters. This is likely due to the fact that the perception of injury severity is more with open fractures. The implication of this on the functional outcome for these patients is grave. Several studies have highlighted the high

complication rate involved in the management of fractures by these traditional bone setters<sup>17, 18, 19</sup>. The fact that the traditional bone setters still enjoy a high level of patronage in our society shows the level of ignorance in our environment.

### Conclusion

Majority of trauma cases are as a result of road traffic crashes, thus efforts should be directed at improving safety on our roads to reduce the burden of trauma on the health care system. There is also need to create awareness in the community on the role of orthodox medicine in the management of fractures.

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