

A 2-year Prospective Study of Head Injuries in Enugu Metropolis: Has There Been Any Change 10 Years After?

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Abstract

Background: Head injury is a global issue because of the attendant burden on the family and the institution. The epidemiological pattern continues to change with the passage of time. Very few data are available on the current status of pattern and epidemiology of head injuries in the last 10 years in Enugu metropolis. We present the pattern of presentation in a public tertiary health institution in Enugu Metropolis, Nigeria. **Materials and Methods:** It is a prospective study in which demographic data such as age and sex, etiology of injury, clinical symptoms and signs, Glasgow Coma Score, injury type, radiologic findings, type of treatment given as well as associated collateral injuries were collated and analysed. **Results:** A total of 85 patients were recruited in this study. The modal age group was patients aged <20 years. The most common etiology and presenting symptoms were Road Traffic Accident (RTA) (63%) and loss of consciousness (21%), respectively. About 54% of the patients had combination of symptoms. The highest number of poor outcomes (vegetative and severe dependence) was seen among the age group 20–39 years. **Conclusion:** Younger age group is increasingly involved. Peak age incidence is reducing. RTA still remains the most common etiology.

Keywords: 10 years, Enugu, head, injuries

INTRODUCTION

Head injury has continued to be a global issue because of the attendant medical and socioeconomic implications to the victims, family of victims, and community at large.^[1-3] This is even worse in low-income and middle-income countries, especially Nigeria, where out-of-pocket spending has continued to be a major source of funding in the health sector.^[4,5] This is despite the effort made for the movement toward universal health insurance coverage in Nigeria.^[6,7] The etiological picture is different in parts of the world and has continued to change with the passage of time.^[8-10] RTA-related injuries, falls, and, recently, gunshot injuries as well as assaults, due to increasing waves of violence and insurgency in sub-Saharan Africa, appear to be changing the epidemiology, dynamics, and patterns.^[11-14]

Different shades of head injuries have been described with variable outcomes. Mild head injury has been found to be the most common type of head injury.^[15] Mezue *et al.* in the review of patients presenting with head injury with associated chest injury, in the two of the three major neurosurgical

centres in Enugu state, revealed that the neurological outcome was related to, among other factors, presenting Glasgow Coma Score (GCS), interval between time of injury and treatment.^[16]

Few prospective studies are available on the current status of the pattern and epidemiology of head injury in the last 10 years in Enugu, and the other parts of Eastern Nigeria.^[15,17,18]

This study intends to evaluate the current epidemiological dynamics in the presentation of head injury in a public tertiary health institution in Enugu metropolis. This will serve to add to the database in Southeastern Nigeria.

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MATERIALS AND METHODS

This is a prospective study involving consecutive head injury patients admitted between 2017 and 2019 into Enugu State University Teaching Hospital, Enugu. This public tertiary health institution is located at the Enugu metropolis and has a young neurosurgical unit compared to the other public tertiary health institution which is located in the outskirts of Enugu Metropolis, Enugu State, Nigeria. Being within the town, it is increasingly becoming a major referral centre for most hospitals within the metropolis. The demographic data such as age and sex, etiology of injury, clinical symptoms and signs, GCS, injury type, type of treatment given as well as associated collateral injuries were collated and analysed.

RESULTS

A total of 85 patients were recruited in this study. The modal age group was patients aged <20 [Table 1]. The male:female ratio was 1.3:1.

RTA-related injury was the most common etiology [Figure 1].

The most common etiology was RTA (64.7%),

The most common presenting symptom was loss of consciousness [Figure 2].

Most patients presented with a combination of symptoms.

Mild head injury was the most common case [Figure 3].

Most cases were mild head injury.

Most of the patients were managed conservatively (90.6%). The most common associated injury was cervical spine injury (14%), while chest injury and limb fractures were seen in 3.5%, respectively.

The highest number of poor outcomes (vegetative and severe dependence) was seen among the age group 20–39 years.

Loss of Consciousness (LOC) is associated with a higher proportion of poor outcomes [Figure 4].

About 54% of patients had no remarkable cranial computed tomography findings. Among the patient that ended up with surgery, higher proportions of unfavourable outcomes (vegetative and severe dependence) were noted.

DISCUSSION

Constant evaluation of the changing pattern and dynamics of traumatic brain injury is necessary if adequate preparation

and policies for effective management and by extension good neurological outcomes are to be contemplated.

In this study, the peak age incidence was patients in their first and second decades of life (<20 years). Similar study done in Enugu showed that head injury was mostly seen in people in third and fourth decades of life.^[17] The modal age group was slightly higher in previous studies in the region and other regions of the country.^[11,14,16,18] This unfortunate increasing involvement of paediatric and very young adults may be

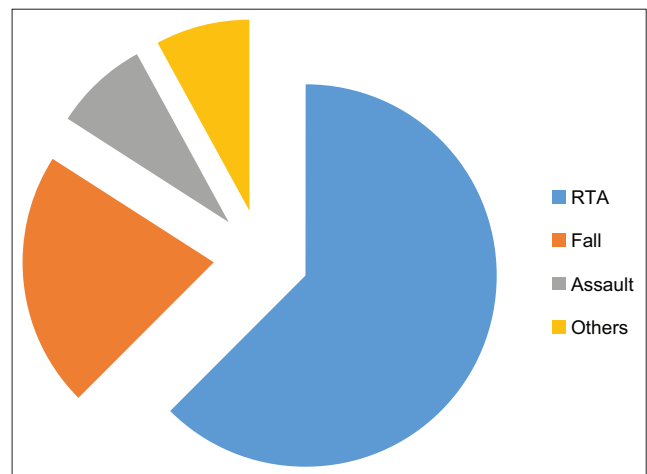


Figure 1: The distribution of the etiology

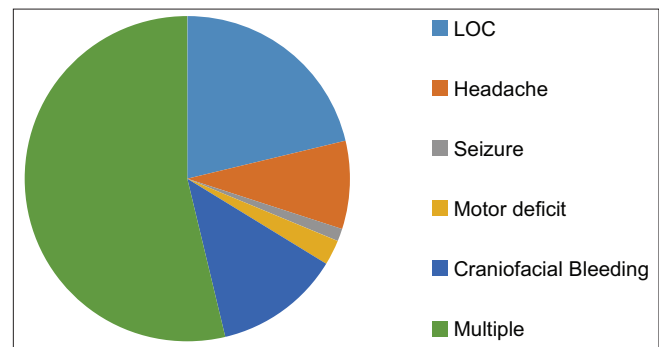


Figure 2: The different presenting symptoms

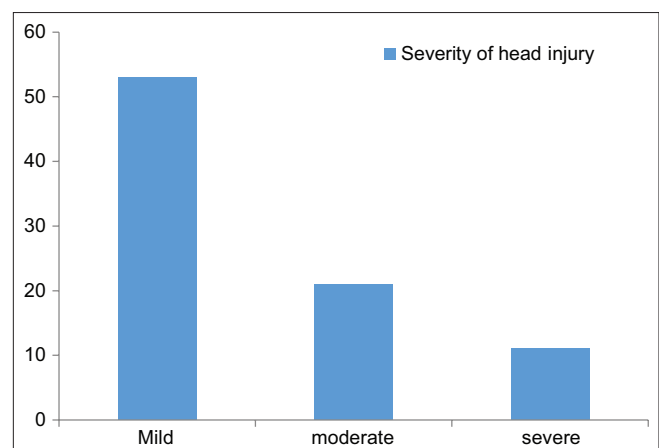


Figure 3: The distribution of the severity

Table 1: The modal age group

Age (years)	Frequency (%)
<20	36 (42.4)
20–39	22 (25.9)
40–59	18 (21.2)
>60	9 (10.6)

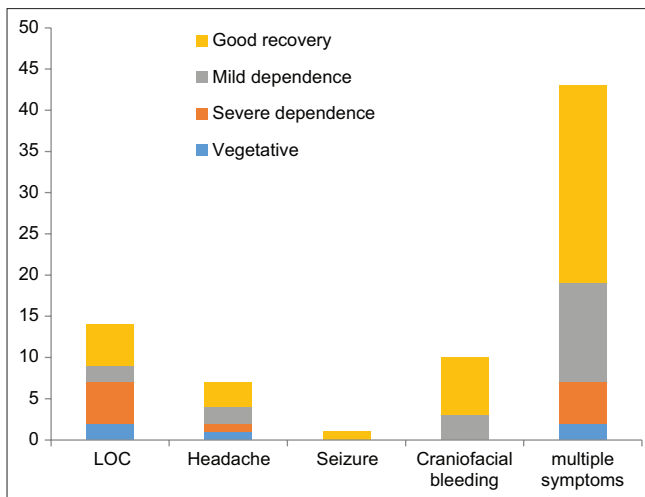


Figure 4: Showing relationship between presenting symptoms and the outcome

explained partly by the increasing involvement of this age group in outdoor activities such as street hawking and other commercial activities due to continued reduction in the family earnings. Besides, taking this age bracket to and fro schools in vehicles crowded roads, and increasingly, deplorable conditions may also be a contributory factor in this shift in peak age incidence. Increasing motorisation of our daily endeavour also increases the chances of RTA. These are all important bearing in mind that most intensive care units (ICUs) in the region and beyond place less priority on the neurointensive care need of children. Basic consumables such as appropriate endotracheal tubes, appropriate AMBU bags, and appropriate ventilators or ventilators with appropriate configuration for children are necessary for good outcomes. The dearth of properly trained support staff for paediatric neurointensive care is also a major limitation. The male gender still dominates the study; however, there is a relative increase in the involvement of the female gender in the study.^[11,17]

The leading etiologies still remain RTA, fall, and assault with frequency of 63%, 22%, and 8%, respectively. Emejulu *et al.* found a higher incidence of RTA-related injuries in another part of the southeast region of Nigeria.^[11] This may likely be due to the lower incidence of motorcycle-related accidents in the current study. Similar studies, although restricted to pediatric head injury in Enugu also showed RTA to account for 63%.^[15] While in a selected group of patients specifically with chest injury complicating head injuries, Mezue *et al.* found slightly lower RTA-related injuries.^[16] Fall also appears to be relatively higher than a previous study in southeastern part of Nigeria.^[11] Mezue *et al.* found lower incidence in their previous study. This may, however, be connected with the difference in patient selection.^[16] The most common type of injury was mild head injury which agrees with other studies locally and internationally.^[8,11,14]

In this study, patients who presented with LOC or headache are more likely to come down with poorer neurological outcomes

compared with patients with seizure, craniofacial bleeding, or combination of symptoms.

Other similar studies lay credence to the importance of level of consciousness as well as severity of injury at presentation.^[16] The apparently higher percentage of patients without cranial computed tomography (CT) abnormality noted in the study compared to previous study by Ohaegbulam *et al.*, in the region, could be explained by the fact that only patient who presented for cranial CT in the centre were studied.^[17] Greater proportion (over 90%) of the patients studied was managed conservatively. However, there is a higher risk of unfavorable outcomes in the event of needing surgery when compared with patients that needed conservative outcomes. This may be explained by the fact that most patients in this prospective study fall into mild head injury. This group of people usually does not need surgery and has relatively favourable outcome largely.

Small sample size is a major limitation of this study, and further prospective studies with simultaneous involvement of the other major neurological centres in Enugu and Southeastern Nigeria are highly recommended.

Recommendations

Despite the inherent limitation of the study, it may be safe to recommend the following:

Since higher proportion of patients with head injuries in Enugu metropolis is RTA-related and younger age group increasingly affected, there is need for more stringent measures on the issuance of driver's licenses. Our roads need to be adequately marked for pedestrians. It is also imperative to have continued advocacy and education on the need to obey road signs. Defaulters should also be punished as a deterrent to others.

Second, there is a need for adequate capacity building and provision of neuro-ICUs with appropriate gadgets to take care of the emerging trend. The available ICUs will also have to start reprioritising their needs

CONCLUSION

Head injury epidemiological pattern shows increasing younger age group affectation. RTA still remains the most common etiology. It is hence imperative for clinicians to continue to evaluate and update their data for effective management plans and also for optimum policies geared toward a better neurological outcome.

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Conflicts of interest

There are no conflicts of interest.

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