

Pattern of Head Injury in Fatal Road Traffic Accident: Retrospective Study

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Abstract

Road traffic Accident have been reported to be a major cause of morbidity and mortality. Due to increasing modernization, road traffic accidents have become exponentially more frequent and dangerous. Mortality rate from road traffic injuries accounts 29.2 per 100000 people⁵. This study was conducted in the Department of Forensic Medicine, Silchar Medical College, Silchar, from 1st November 2021 to 31st October 2022. The aim of the study is the pattern of head injuries in fatal road traffic accident. Out of the 981 autopsy cases were conducted during the above-mentioned period, a total of 200 cases were found deaths due to head injuries. Out of 200 cases, common age group involved was from 40-50 years, the deceased were more from rural areas. Maximum cases during winter season. Commonest injuries were scalp abrasion, linear fracture of skull and subdural haemorrhage. Head injury has become a common cause of death and disability among Road Traffic Accident cases. This further shows the need of strict implementations of traffic rules. Positive policy initiatives such as mandatory helmet legislation need reliable and consistent data to support ongoing monitoring and enforcement of such initiatives.

Key words: Skull fracture, Head injury, RTA, intracranial haemorrhage

Introduction

Road traffic accident is the major cause of morbidity and mortality. Increasing modernization of road traffic, it has become exponentially more frequent and serious.² Head injury is the result of variety of mechanisms including motor vehicle. India has second highest reported mortality rate of 29.2 per 100000 people from road traffic injuries.⁵ The current study was carried out with a view to ascertaining the pattern of head injuries sustained during fatal motor vehicular incidents³. The prevalence of head injuries in relation to different epidemiological factors, which

will help concerned authorities related with such cases to proceed in right direction.

Aims and Objectives

1. To determine the pattern of head injury in fatal road traffic accident.
2. To study the incidence of head injury in relation to age, gender, religion, demographic and seasonal distribution.
3. To know the types of head injuries and their frequency.

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Materials and Methods

This study was carried out over a period of one year starting from 1st November 2021 to 31st October 2022 in the Department of Forensic Medicine, Silchar Medical College and Hospital. Being the only tertiary care hospital in the entire southern Assam region, this hospital receives patients from the entire region. Hence, most of the autopsies are conducted at the Silchar Medical College. Cases of motor vehicular accident without head injuries, death due to other causes were excluded from the study. Each head injury case was examined and evaluated. All parameters were entered from the information collected from inquest report, dead body challan and autopsy reports. Data collected were entered in Microsoft excel sheet and statistical analysis was done using descriptive statistics.

Results

1. **Incidence:** Out of the 981 autopsy cases conducted during the above-mentioned period, a total of 200 (20%) cases were found deaths due to head injuries in fatal road incidents, reported at SMCH during the study period. Shown in figure: 1

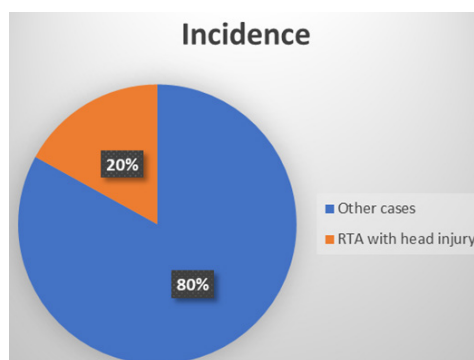


Figure 1

2. **Gender wise distribution:** The cases are seen more in male victims 165 (83%) as compared to female victim 35 (17%); (figure:2)

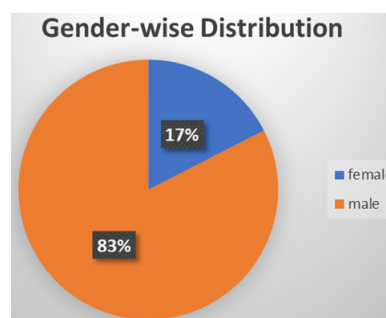


Figure 2

3. **Age wise distribution:** In the present study the highest number of RTA victim were between the age group of 40-50 years comprising of 60 in number followed by the age group of 20-30 years and 30-40 years has the same number of cases. (figure:3)

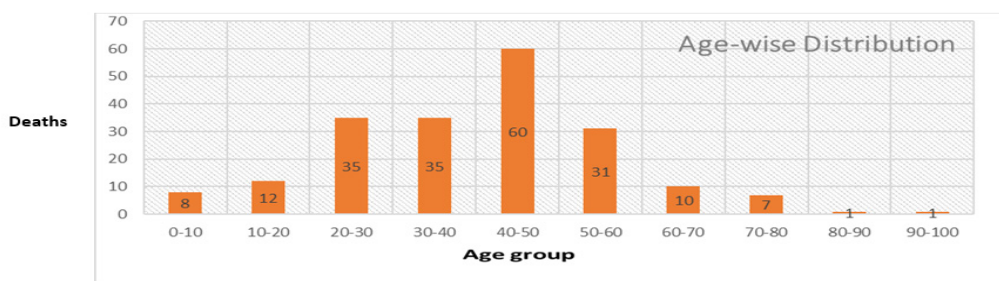


Figure 3

3. **Seasonal Variation:** In this study 50% (100 cases) were found in winter season followed by summer season 35% (70 cases) and least being the monsoon season. (figure:4)

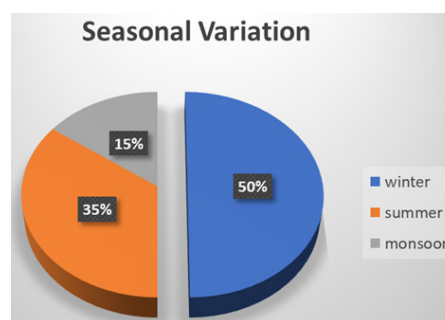


Figure 4

4. **Scalp injuries:** Majority of the victims had abrasion 73% followed by lacerated 18% injuries and bruise being the least common. (figure:5)

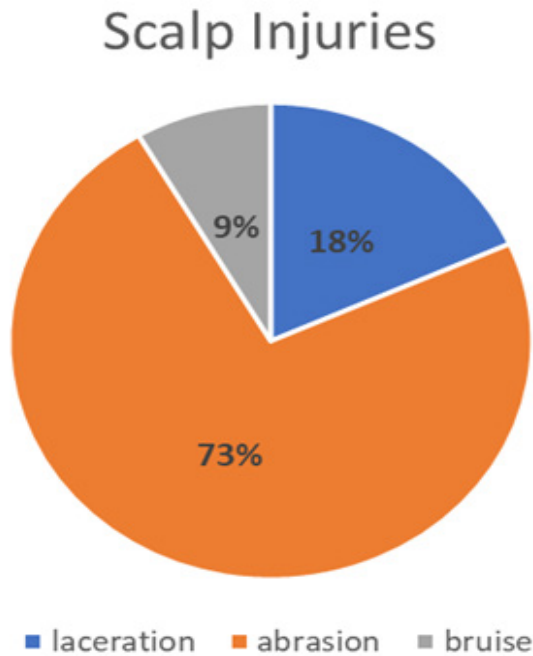


Figure 5

5. **Distribution of skull fracture:** Linear fracture alone was observed 36% was most common followed by 31% of basilar fracture, diastatic fracture 17%, comminuted fracture 16%. (figure:6)

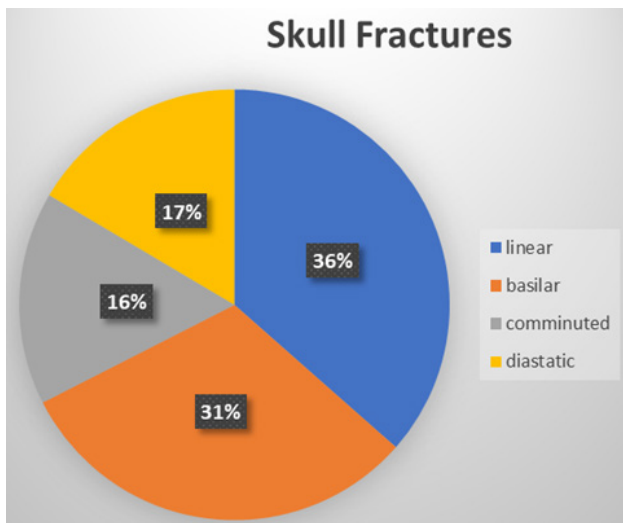


Figure 6

6. **Distribution of Intracranial Haemorrhage:** In this study Subdural haemorrhage SDH was found 49% followed by extradural

haemorrhage EDH 31% and sub arachnoid haemorrhage SAH 20% (figure:7).

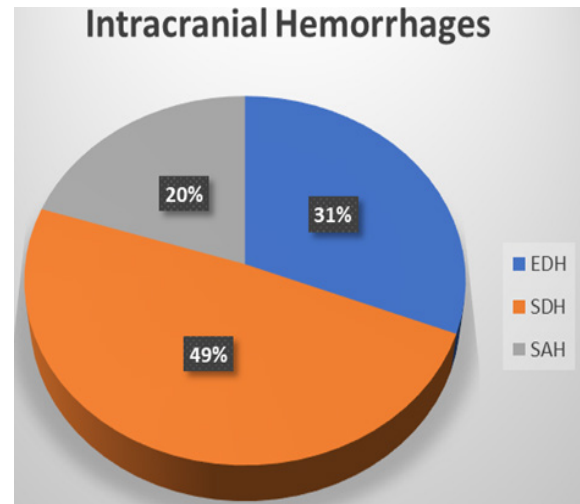


Figure 7

Discussion

1. In this study majority of the victims belong to the age group of 40-50 years (60 number of cases) that is compatible with studies by Pate RS, Hire RC, Rojekar MH⁹ (21-30 years) and Jha N, Srinivas DK, Roy G, Jagadish S⁴ (16-30 years).

2. The highest number of victims were male 165 (83%) and least numbers were found in female 35 (17%) which was similar with Jha N, Srinivas DK, Roy G, Jagadish S⁴ 603 (83%) was male and 123 (17%) were female which is similar with study by Ravikumar R¹⁰. (87.75%).

3. This study shows that the most of the death in road traffic accident occurs during winter season similar findings seen with study of Algahtany MA¹ (21.3% during winter season).

4. Among the various injuries, commonest injury was abrasion (73%) followed by laceration (18%) and bruise (9%).

5. The commonest fracture was linear fracture (36%) that is consistent with Ravikumar R¹⁰ and Menon A, Pai VK, Rajeev A⁶ but with varying percentages.

6. Subdural haemorrhage (SDH 49%) was the most common Brain injury suffered by the victims which is consistent to Menon A, Pai VK, Rajeev A⁶ (52.63%).

Conclusion

The present study is to view & isolate any set patterns emerging out the scenario of motor vehicular incident involving head injuries and to find out factors responsible for the types of injuries leading death of the victims, so that preventive and remedial measures can be adopted to reduce future mortality. There are two factors human & mechanical error, however human factor plays a greater role; this is in particular the case prevalent in most Indian road where people hardly look before crossing. Wearing helmet reduces the chances of serious head injury and fatality. So, in addition to existing traffic rules, better traffic training & education should be given to the public, and use of protective device like seat belt, head rest and helmets by both rider and pillion rider. Another factor is the influence of alcohol & drugs. Many collisions due to miscalculation of speed. Routine use of alcohol measuring gadgets, especially on the highway, and heavy penalty to the defaulters must be imposed to stop drunk driving. The majority of the deaths was within the first few hours of the incident. First aid medical care, ambulance and provision of well-equipped hospital will save the life of many victims.

Conflict of Interest: Nil

Source of Funding: Self

Ethical Clearance: Taken from institutional ethics committee at Silchar Medical college, Silchar, Assam

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