

## Original Research

### Assessment of head injuries in road traffic accidents: A forensic study

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#### ABSTRACT:

**Background:** Head injury (HI) usually accounts for the major proportion of case fatalities in studies that examine the burden of road-traffic injuries (RTI), also known as road-traffic accidents. Hence; under the light of above mentioned data, the present study was undertaken for assessing head injuries in road traffic accidents. **Materials & methods:** Data of a total of 100 patients was analyzed. Only those patients were included in the present study who was admitted with head injury due to road traffic accident. A Performa was made and complete demographic and clinico-radiographic profile of all the patients was recorded. Brain injury was assessed for its severity based on Glasgow coma scale. All the results were compiled in Microsoft excel sheet and were analyzed by SPSS software. **Results:** 38 percent of the patients belonged to the age group of 30 to 50 years. 73 percent of the patients were males while the remaining were females. According to Glasgow coma scale, mild injury was seen in 23 percent of the patients while moderate and severe injury was seen in 23 percent and 59 percent of the patients. Loss of consciousness was present in 73 percent of the patients while post-injury vomiting was present in 22 percent of the patients. **Conclusion:** Brain injuries due to road traffic crashes constitute a significant public health problem with adult male mostly frequently affected by it.

**Key words:** Head injuries, Road traffic accident

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#### INTRODUCTION

Head injury (HI) usually accounts for the major proportion of case fatalities in studies that examine the burden of road-traffic injuries (RTI), also known as road-traffic accidents. Although a global phenomenon, RTI burdens in general, and RTI-related fatalities in particular, exert their highest tolls in the low middle-income countries (LMIC) of the world.<sup>1-3</sup> Every year more than 10 million people are affected by traumatic brain injuries (TBIs). Despite efforts being made to improve TBI care, it remains a public health problem, continuing to cause high mortality and morbidity in a young population. The World Health Organization (WHO) considers TBI to be one of the most pressing and under-recognized areas in public health problems, with predictions that by 2020,

it will be the third highest cause of death and disability. It has been shown that in low-middle income countries in the past 17 years, violence and road traffic accidents (RTAs) have been the main causes of TBI and have associated high mortality.<sup>4-7</sup> Hence; under the light of above mentioned data, the present study was undertaken for assessing head injuries in road traffic accidents.

#### MATERIALS & METHODS

The present study was undertaken in the department of forensic medicine and toxicology of the medical institute with the aim of assessing head injuries in road traffic accidents. Ethical approval was obtained from institutional ethical committee. Data of a total of 100 patients was analyzed. Only those patients were

included in the present study who was admitted with head injury due to road traffic accident. A Performa was made and complete demographic and clinico-radiographic profile of all the patients was recorded. Brain injury was assessed for its severity based on Glasgow coma scale. All the results were compiled in Microsoft excel sheet and were analyzed by SPSS software. Univariate regression curve was used for assessing the level of significance.

**RESULTS**

In the present study, a total of 100 subjects were analyzed. Mean age of the patients was 53.5 years. Majority of the patients belonged to the age group of more than 50 years. 38 percent of the patients belonged to the age group of 30 to 50 years. 73 percent of the patients were males while the remaining were females. According to Glasgow coma scale, mild injury was seen in 23 percent of the patients while moderate and severe injury was seen in 23 percent and 59 percent of the patients. Loss of consciousness was present in 73 percent of the patients while post-injury vomiting was present in 22 percent of the patients.

Table 1: Age-wise and gender-wise distribution

Parameter		Number of patients	Percentage of patients
Age group (years)	Less than 30	23	23
	30 to 50	38	38
	More than 50	39	39
Gender	Males	73	73
	Females	27	27

Table 2: Severity

Severity	Number of patients	Percentage of patients
Mild	23	23
Moderate	59	59
Severe	18	18

Table 3: Clinical findings

Clinical findings	Value
Loss of consciousness	73
Vomiting post-injury	22
Persistent headache	21
Others	19

**DISCUSSION**

Along with RTA come considerable human misery, permanent disabilities and lost resources—the burden being placed on both family budgets and global economies. In a broader sense, there are millions of people forced to cope with the death or disability of family members or friends because of RTA. Thus, the global cost of RTA is considerably larger. Human

behavioural factors, vehicles and road conditions are all important factors that determine the incidence and severity of RTA.<sup>7-9</sup> Hence; the present study was undertaken for assessing head injuries in road traffic accidents.

In the present study, a total of 100 subjects were analyzed. Mean age of the patients was 53.5 years. Majority of the patients belonged to the age group of more than 50 years. 38 percent of the patients belonged to the age group of 30 to 50 years. 73 percent of the patients were males while the remaining were females. Majdan M et al analyzed the severity and outcome of TBI caused by RTA in different types of road users in five European countries. 44% of TBI were traffic related. The median age of patients was 32.5 years, being the lowest (25 years) in car passengers. The most severe and extensive injuries were reported in pedestrians. TBI are significantly associated with RTA and thus, tackling them together could be more effective. The population at highest risk of RTA-related TBI is young males.<sup>10</sup> Umaru et al stated that motorcycles were responsible for most of the pedestrian injuries. Baldwin et al in their study from London, UK found that 74 per cent of all pedestrian injuries involved a bus or a car.<sup>6,7</sup>

KK Banerjee et al studied the profile of head injury victims in fatal road traffic accidents in Delhi. The study revealed 31% were the victims of Head injury in Delhi in vehicular accidents. Although majority of the fatalities were on the spot quite a number of such victims survived for a varied period. A multipronged approach including the preventive and curative measures for this man-made calamity is the need of the hour.<sup>11</sup>

In the present study, according to Glasgow coma scale, mild injury was seen in 23 percent of the patients while moderate and severe injury was seen in 23 percent and 59 percent of the patients. Loss of consciousness was present in 73 percent of the patients while post-injury vomiting was present in 22 percent of the patients. Bener A et al determined the incidence pattern of head and neck injuries, investigated its trend and identify the severity of injuries involved with road traffic crashes (RTCs). A total of 6709 patients with head and neck injuries was reported. There were statistical significant differences in relation to age, nationality, gender, and accident during weekends for head and neck injuries (p<0.001). The male to female ratio for head and neck injury was 6.1:1. There was a disproportionately higher incidence of accidents during weekends (27.8%). Majority of the patients had mild injury (87.2%), followed by moderate (7.3%) and severe (5.5%). The highest frequency of head injury was among the young adults 20-44 years (68.5%). Overall, the incidence of head and neck injuries from road traffic crashes are increasing.<sup>12</sup>

Most times, measures that had proven effectual at promoting road safety and prevention or mitigation of

RTI burdens in the high-income countries fail to have any significant impact. Some of these measures include graduated driver licensing system, restrictions on the engine size of motorcycles that learners could ride, raising the legal age of motorcyclists, and construction of overpasses along selected roads and highways. These policies are aimed at reducing the risk of dangerous road scenarios for the vulnerable. Passengers from some developing countries have been known to avoid using overpasses across highways, considering them too long a distance to cover across the highways, and to be high-risk settings for personal crimes.<sup>10-12</sup>

## CONCLUSION

From the above results, the authors conclude that Brain injuries due to road traffic crashes constitute a significant public health problem with adult male mostly frequently affected by it.

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