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Original Research

Evaluation of profile of victims of road traffic accidents undergoing autopsy

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ABSTRACT:

Background: Motorization has enhanced the lives of many individuals and societies, but the benefits have come with a price. Head injury has been defined as "a morbid state, resulting from gross or subtle structural changes in the scalp, skull, and/or the contents of skull, produced by mechanical forces". Hence, this study was planned in the department of forensic medicine to analyse and evaluate in detail the profile of victims of road traffic accidents undergoing autopsy. **Materials & methods:** Assessment of consecutive 100 victims was done which died in road traffic accidents and underwent post-mortem examination. Data were collected for duration of one year. In all these cases detailed personal information was recorded from relatives/accompanies of victim, inquest papers, and hospital records. The history regarding the circumstances of the accidents and other relevant data about injuries to the victims, the site of impact was obtained from inquest papers. Dead bodies were examined in detail during post-mortem for the presence of external injuries, internal injuries including bone and joints. **Results:** 38 percent of the patients belonged to the age group of 30 to 40 years. Mean age of the patients was 38.4 years. Manner of accident was motor cycle- car seen in 60 %, motor cycle- bus in 28% and car- truck in 12%. There was head involvement in 48%, in 22% Head+ Chest, in 16% Head+ limbs, in 8% abdomen and in 6% Head+ Chest+ abdomen was involved. The most common cause was head injury seen in 59% followed by Injury to vital organ in 23% and shock & haemorrhage in 18%. **Conclusion:** Road traffic accidents are an unfortunate economic burden on developing countries like India. Head injury due to RTA is a recognized public health problem causing death and disability.

Key words: Autopsy, Road traffic accident.

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INTRODUCTION

Motorization has enhanced the lives of many individuals and societies, but the benefits have come with a price. As a developing country, India is no exception. Not a day passes without RTA happening in the roads in India in which countless number of people are killed or disabled. Often members of the whole family are wiped out. Head injury is the single most common cause of mortality in road traffic accidents; head being the most vulnerable part of the body. India accounts for about 10% of road accident fatalities worldwide.[1-3]

Head injury has been defined as "a morbid state, resulting from gross or subtle structural changes in the scalp, skull, and/or the contents of skull, produced by mechanical forces". The dominance of head injuries in road traffic accidents is due to the fact that, when the victim is pushed or knocked to the ground, he/she often strikes the head and also, that the brain and its coverings are vulnerable to blunt trauma that would not so frequently be lethal if applied to other body parts.[4, 5] Various patterns of head injuries like scalp abrasions, contusions, lacerations, incised wounds, meningeal haemorrhages and skull fractures can be found in road traffic accident cases. The types of skull fractures are basilar fractures, linear fractures, depressed fracture, comminuted fractures, separation of suture (diastatic fracture), pond or indented fractures, gutter fracture, ring fracture. The different types of meningeal hemorrhages includes subdural hemorrhage, extra-dural or epidural hemorrhage, subarachnoid hemorrhage and intra-cerebral hemorrhage.[6,7] Hence, this study was planned in the department of forensic medicine to analyse and evaluate in detail the profile of victims of road traffic accidents undergoing autopsy.

MATERIALS & METHODS

The present study was conducted in the department of Forensic medicine and Toxicology and it included assessment of consecutive 100 victims which died in road traffic accidents and underwent post-mortem examination. Data were collected for duration of one year. In all these cases detailed personal information was recorded from relatives/accompanies of victim, inquest papers, and hospital records. The history regarding the circumstances of the accidents and other relevant data about injuries to the victims, the site of impact was obtained from inquest papers. Dead bodies were examined in detail during post-mortem for the presence of external injuries, internal injuries including bone and joints. All the results were recorded in Microsoft excel sheet and were analysed by SPSS software version 17.0.

RESULTS

38 percent of the patients belonged to the age group of 30 to 40 years. Mean age of the patients was 38.4 years. 21 percent and 19 percent of the patients belonged to the age group of 40 to 50 years and 20 to 30 years respectively. 56 percent of the patients were males while the remaining ere females. In 40 percent of the patients, the residence was rural and while in 60% it was urban. Manner of accident was motor cycle- car seen in 60 %, motor cycle- bus in 28% and car- truck in 12%. There was head involvement in 48%, in 22% Head+ Chest, in 16% Head+ limbs, in 8% abdomen and in 6% Head+ Chest+ abdomen was involved. The most common cause was head injury seen in 59% followed by Injury to vital organ in 23% and shock & haemorrhage in 18%.

Table 1: Age-wise distribution of patients

Age group (Years)	Number	Percentage
10- 20	4	4
20-30	19	19
30-40	38	38
40-50	21	21
50-60	11	11
>60	7	7
Total	100	100

Table 2: Place of accidents

Place	Number	Percentage
Rural	40	40
Urban	60	60
Total	100	100

Table 3 Area of the body injured

Area of the body injured	Number	Percentage
Head	48	48
Head+ Chest	22	22
Head+ limbs	16	16
Abdomen	8	8
Head+ Chest+ abdomen	6	6

Table 4 Cause of death

Cause of death	Number	Percentage
Head injury	130	59
Injury to vital organ	40	23
Shock & Haemorrhage	30	18

DISCUSSION

Human, vehicular and environmental factors play roles before; during and after a trauma event therefore accidents have to be studied in terms of an epidemiological model (agent, host and environmental factors. The deaths in road traffic accidents are mostly preventable through intensive efforts of government institutions and civil society activists. Early and proper treatment is essential to save the life of the victims, especially in cases of head injury. By analyzing the pattern of the head injury, we can attempt to find a means to achieve this goal. Therefore, this problem needs serious attention for the prevention of unnatural deaths on roads by vehicles, which requires an epidemiological, medico- legal and clinical study on such victims. Since, head injury is a common outcome of most vehicular accidents and other cases of trauma.[5- 9] Hence, this study was planned in the department of forensic medicine to analyse and evaluate in detail the profile of victims of road traffic accidents undergoing autopsy.

In the present study, 38 percent of the patients belonged to the age group of 30 to 40 years. Mean age of the patients was 38.4 years. 21 percent and 19 percent of the patients belonged to the age group of 40 to 50 years and 20 to 30 years respectively. 56 percent of the patients were males while the remaining ere females. In 40 percent of the patients, the residence was rural and while in 60% it was urban. In a previous study conducted by Ravikumar R, authors analysed a total of 245 cases of deaths due to two wheeler accidents who were reported for the autopsy. Riders constituted (76.33%) and pillion riders (23.67%). Most victims were male (87.75%), skull fractures (67.75%) were observed in the two wheeler accidental death. Linear fracture (55.43%) was the commonest pattern of fracture observed in these accidents. Sub-dural haemorrhage was also the commonest intracranial haemorrhage and rib injuries were commonly associated with head injuries.[9] Saleem et al, in their study on 160 autopsies found that 39 cases were victims of road traffic accidents. Of these road traffic accidents victims, 79.4% autopsies were of those between the ages of 1 and 40 years. The gender distribution revealed a higher prevalence for males (84.6%) than females (15.4%). Death was due to injury to the head in 66% cases. The majority of victims were front seat passengers (43.9%), drivers (35.7%), followed by back seat passengers (15.3) and pedestrians (5.1%).[10]

In the present study, manner of accident was motor cycle- car seen in 60 %, motor cycle- bus in 28% and car- truck in 12%. There was head involvement in 48%, in 22% Head+ Chest, in 16% Head+ limbs, in 8% abdomen and in 6% Head+ Chest+ abdomen was involved. The most common cause was head injury seen in 59% followed by Injury to vital organ in 23% and shock & haemorrhage in 18%. In a previous study conducted by Soni et al, authors studied 200 post-mortem cases of road traffic accidents and found skull fracture in 57% cases and most common type of skull fracture was linear fracture alone (32.0%) followed by depressed 9.5%) and least common sutural fracture alone, in combine linear with sutural fracture were most common i.e. (5.0%), least common was comminuted with linear fracture (0.5%). In the study it was observed that most of the fractures were present on frontal bone i.e. 46 (23.0%) followed by temporal bone (16.5%) and least common on over combine area (Frontal + Temporal, Occipital + Parieto-Temporal, Parieto-Occipital, Temporal + Frontal) (0.5%).[11] Bharathi MO et al, in their study, analysed a total of 639 medico legal autopsies. 56.81% were of RTA. Fracture of skull was present in 85%. Combination of vault and base fracture was the most common (48.23%) distribution of skull fracture. Fracture of the vault of skull alone was seen in 36.47%. Commonest type of fracture present in the skull vault was linear/fissured fracture (54.83%) constituting 68 out of 124 sites followed by comminuted fracture being 40 out of 124 sites (32.25%). Middle cranial fossa was the commonest fossa involved. 36% died within 24 hours after the accident. 33% victims survived beyond 24 hours but died within one week. Skull fractures are not uncommon in fatal road traffic accident cases.[12]

CONCLUSION

Road traffic accidents are an unfortunate economic burden on developing countries like India. Head injury due to RTA is a recognized public health problem causing death and disability. It is required from concerned government authority to take appropriate and immediate measures for reducing the incidence of head injury. At the same time, people should be educated for taking good preventive actions to avoid head injury.

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