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Original Research Article

To Study the Socio-Demographic Profile of Cases of Fatal Head Injury in Road Traffic Accidents (RTA).

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Abstract:

Background & Methods: To study the socio-demographic profile of cases of fatal head injury in road traffic accidents (RTA). The post-mortem centre conducting medicolegal post-mortems. All known cases of fatal RTA victims, who were brought for medico legal post mortem during study period. All cases fulfilling the inclusion criteria were studied. Preliminary data related to name, age, sex, address, brought by whom, date and time of incidence, date and time of admission, date and time of death were noted. The inquest report was carefully read, before starting post-mortem examination, detailed history regarding the mode of head injury was obtained from inquest report, hospital papers, from the concerned Investigating officer and also from relatives.

Results: The distribution of RTA cases according to their demographic characteristics: Religion: reflects that majority of cases was Hindu (81.06%) followed by to Muslim (13.5%) and Sikh (5.3%). Marital status: It shows that death in road traffic accidents were more among married persons (72.5%) then unmarried cases (27.5%). Type of Habitat: Majority of the victims were belonged to rural areas 61.3% whereas 38.6% were belonged to urban area.

Conclusion: From the present study it can be opined that injuries to the skull and brain are the main contributory factors in causation of fatalities due to vehicular accidents and prevention of these can reduce the mortality and morbidity to a great extent. The rate of incidence is higher in India because of its traffic patterns and their demographic profile. Possibly, the lack of preventive measures such as helmets in motor cyclists, seatbelts in automobiles, poorly controlled traffic conditions and poor road conditions are other factors responsible for injuries.

Keywords: socio-demographic, fatal, head & road traffic accidents (RTA).

Study Design: Observational Study.

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Introduction

The human brain weighs about 1.2 kg and is poorly supported by the falx and tentorium within the skull. Its soft consistency and absence of intrinsic fibrous supporting structures make it especially vulnerable to shearing forces [1]. The brain remained only by the cranial nerves and brain stem at the base and by the parasagital bridging veins along the inter-hemispheric convexity [2].

The cerebrum is made of two cerebral hemispheres which are incompletely separated from each other by the median longitudinal fissure. The two hemispheres are connected to each other across the median plane by the corpus callosum. Each hemisphere contains a cavity, is called the lateral ventricle. Depression over brain is called as Sulci and raised areas as Gyri. Each cerebral hemisphere is divided into four lobes-frontal, parietal, occipital, temporal. Their position corresponds, very roughly, to that of the corresponding bones [3].

The cerebellum is the largest part of hindbrain situated dorsal to pons and medulla in posterior cranial fossa. Two hemispheres of cerebellum are connected by vermis [4].

Injury to bicyclist if caused by an automobile injury may be similar to those sustained by a pedestrian except that the impact will be lower on the body or only against to some part of bicycle itself. The secondary injuries may be more severe due to greater distance to fall. When a person travels by bicycle and get hit by a vehicle then fracture of bone, severe soft tissue injuries and bicycle spoke injury is produced particularly in children. Injuries due to running over may be present. An injury to

motorcyclist usually occurs by running in front of a vehicle from one side to other[5].

Material and Methods

Present study was conducted at Mortuary of Department of Forensic Medicine & Toxicology of Government Medical College Ratlam and associated Hospitals for 02 Years. The post-mortem centre conducting medicolegal post-mortems. All known cases of fatal RTA victims, who were brought for medico legal post mortem during study period. All cases fulfilling the inclusion criteria were studied. Preliminary data related to name, age, sex, address, brought by whom, date and time of incidence, date and time of admission, date and time of death were noted. The inquest report was carefully read, before starting post-mortem examination, detailed history regarding the mode of head injury was obtained from inquest report, hospital papers, from the concerned Investigating officer and also from relatives.

Inclusion Criteria:-

- Cases of road traffic accident with fatal head injury.
- Cases of RTA with head injury associated with other fatal injuries.

Exclusion Criteria:-

- Cases of accidents which on investigations do not prove to be due to RTA.
- Decomposed cases.
- Other cases such as rail accidents & fall from height etc.

Result

Table 1: Distribution of cases of RTA according to age and sex.

Age (in years)	Female (%)	Male (%)	Total (%)
Less than 10 years	06	00	06 (2.4%)
11 – 20	03	23	26 (10.6%)
21 – 30	05	69	74 (30.4%)
31 – 40	11	37	48 (19.7%)
41 – 50	07	35	42 (17.7%)
51 – 60	04	23	27 (11.1%)
61 – 70	03	13	16 (6.5%)
71 and above	00	04	04 (1.6%)
Total	39	204	243 (100%)

The distribution of cases according to age and sex, Age of the victims varied from 3 to 74 years. The peak incidence was observed in the age group of 21-30 years comprising 30.4% of cases. It was also observed that 19.7% belong to the age group 31-40 years. Thus 50.1% of the cases comprised of age group of 21-40 years in the study. Individuals in the age group of more than 60 years were the least affected.

Table 2: Distribution of cases of RTA according to demographic profile

Demographic profile	No. of Cases	Percentage (%)
a) Religion		
Hindu	225	92.6
Muslim	08	3.2
Others	10	4.2
b) Marital status		
Married	176	72.5
Unmarried	67	27.5
c) Type of habitat		
Rural	149	61.3
Urban	94	38.6

Shows the distribution of RTA cases according to their demographic characteristics: **Religion:** reflects that majority of cases was Hindu (92.6%) followed by to Muslim (3.2%) and Others (4.2%). **Marital status:** It shows that death in road traffic accidents were more among married persons (72.5%) then unmarried cases (27.5%). **Type of Habitat:** Majority of the victims were belonged to rural areas 61.3% whereas 38.6% were belonged to urban area.

Table 3: Distribution of cases of RTA according to place of accident.

Place of accident	No. of Cases	Percentage (%)
City Road	96	39.5
Highway	107	44.1
Rural Road	40	16.4
Total	243	100.0

Most of the deaths occurred due to accidents over Highway roads i.e. 107 (44.1%), followed by City roads 96 (39.5%) and rural roads 40 (16.4%).

Table 4: Distribution of cases according to type of victims.

Type of Victims	No. of Cases	Percentage (%)
Pedestrian	62	25.5
Bicycle	13	5.3
Two wheeler Motor Cycle	134	55.1
Four wheeler (driver)	23	9.4
Passenger	11	4.5
Total	243	100.0

Maximum in 134 cases (55.1%) were two wheeler riders, whereas 23 cases (9.4%) were Four wheeler, were most common victims of accidents, followed by pedestrians 62 (25.5%). Minimum incidence was observed in bicycle 13 (5.3%) and in passengers 11 (4.5%) least common.

Discussion

In the present study the age of victims varied from 3 to 74 years. The peak incidence was observed in the age group of 21-30 years comprising 30.4% of cases followed by age group of 31-40 (19.7%) years. So, in 20-40 years age group, more than half of cases (50.1%) died due to head injury. Individuals in the age group of more than 70 years were the least affected (1.6%).

The findings are consistent with other studies where most of the victims were from 21-30 years followed by 31-40 age group, like Jambure M [6], Arora S and Khajuria B [7], P.V.Srinivasa Kumar and K.Srinivasan [8], Shruthi P [9].

The high mortality observed in this age group may be because of most active period of life and mostly involved in outdoor activities, more enthusiastic and energetic age group with more risk taking tendencies. Low incidence observed in extreme age group because children and old people are confined to their homes, hence the risk of exposure to the outer hazardous environment is low. Findings of the present study are partially.

In present study shows majority of victims were Hindu's (81.06%) followed by Muslim (13.5%) and Sikh (5.3%). Verma P et al [10], also reported maximum incidence among Hindu religion. The reason for the Hindu predominance is that in this region Hinduism is the most commonly followed religion and so is the increase in the Hindu victims.

In the present study deaths in road traffic accidents were among married persons (72.5%) compared to unmarried (27.5%). Similar observations were found in study of various researcher viz Verma P et al [10].

Conclusion

From the present study it can be opined that injuries to the skull and brain are the main contributory factors in causation of fatalities due to vehicular accidents and prevention of these can reduce the mortality and morbidity to a great extent. The rate of incidence is higher in India because of its traffic patterns and their demographic profile. Possibly, the lack of preventive measures such as helmets in motor cyclists, seatbelts in automobiles, poorly controlled traffic conditions and poor road conditions are other factors responsible for injuries.

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