Pattern of Injuries Observed in Drivers Involved in Fatal Road Traffic Accidents in Tirupati

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Abstract

Road Traffic Accidents (RTA) constitute a significant health problem. They constitute the 8th leading cause of death. The aim of this study was to analyse road traffic accidents in Tirupati city and find out the pattern of injuries in drivers who were victims of fatal road traffic accidents.

This retrospective study was conducted at the Department of Forensic medicine, S.V Medical College, Tirupati during period 2016 to 2018. Specific findings regarding the injuries sustained to the drivers were noted.

A total of 904 people were killed in RTA and were brought to the morgue for postmortem examination. Out of all victims 170 (18.80%) were drivers. Most common age group involved was 30 – 39 yrs. Most of the drivers were males. Polytrauma with lower limb injuries accounted for most common injury in drivers (40.35%) followed by head injury (19.29%) and thoracic injury (12.28%). This study has shown the vulnerability of the vehicle drivers to fatal injuries during RTA. Hence, there is a need for road safety awareness, usage of seat belts, strict enforcement of laws, maintaining vehicle fitness etc. to protect the vulnerable group of people, to decrease the associated morbidity, mortality and reduce the economic burden to the society/ country at large.

Key words: *Road traffic accidents, Drivers, Autopsy, Injury patterns*

Introduction

Accidents are killing more people in India than terrorism or natural disasters and yet we never talk about them' Mr. Nitin Gadkari, surface transport minister[1].

Each year an estimated 1.35 million people die as a result of road traffic collisions with more than 3700 deaths each day[2]. Road traffic injuries are estimated to be the eighth-leading cause of death globally for all ages and the leading cause of death in children and young people of 5 – 29 years of age[2].

India ranks 1 in the number of road accident deaths across the 199 countries reported in the World Road Statistics, 2018 followed by China and US. As per the WHO Global Report on Road Safety 2018, India accounts for almost 11% of the accident related deaths in the World. In the year 2018, 1,51,417 persons got killed and 4,69,418 were injured in about 4,67,044 road accidents [2].

This study reviews the various postmortem reported injuries sustained by vehicle drivers among the road traffic accidents victims. The results of this study shall contribute for better understanding of RTA.

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Materials and Methodology

This study is a retrospective review of various autopsy diagnosed injuries of drivers involved in RTA. Study was conducted at the Department of Forensic Medicine, Sri Venkateshwara Medical College, Tirupati, Andhra Pradesh. The data was collected from postmortem records spanning from 2016 to 2018.

The data extracted was grouped according to Age, sex and diagnosis. RTAs reported cases involving vehicle drivers were included in this study except those with incomplete or missing information on type of injury and cause of death. The data collected comprised of the following parameters

- Characteristics of road traffic accidents

- Year wise death of drivers

- Types of accidents

- Injury characteristics

Data was entered into SPSS version 20 database.

Permission for access to records was taken from appropriate authorities at the inception of this study. This study was approved by Institutional ethical committee, Sri Venkateshwara Medical College, Tirupati, Andhra Pradesh.

Results and Observations

A total of 904 RTA related deaths occurred during 2016 to 2018 (Table 1). This study had 167 (98.23%) males and 03 (1.76%) female drivers. The minimum and maximum age being 20 and 65 respectively with highest number of victims, 59 (34.70%) between 30-39 years age group (Table 2).

The most common trauma was fractures with 77 (45.29%) cases, followed by internal haemorrhage 40 (23.52%), lacerations 23 (13.52%) (Table 3). Extremities were most involved (45.61%) followed by head injury, 33(19.29%) and thoracic injury 21(12.28%). Spine injury had the least incidence with 3 (1.76%) cases (Figure 1).

The highest male driver incidence was between the ages of 30-39 years, 57 (34.13%) cases. Only three cases of female drivers among which two were reported in the age group of 30-39 years and one in 40 – 49 years age group.

A total of 170 RTAs with death of drivers occurred during the study period. Majority of them, 135 (79.41%) were collision accidents with other vehicles or fixed objects and 35 (20.58%) were overturning accidents (Table 4).

Discussion

The driver mortality accounted for 18.80% of all deaths due RTA cases. This differs from that of Jha et al[3] in South India with 10% prevalence. Seid et al[4] and Ossei et al[5] reported an incidence of 6.5% and 6.9% respectively. The male dominating prevalence of 98.23% mortality of the present study is in accordance with the findings by Moafian et al[6] and Ossei et al[5]. This male predominance is due to more employment of males as drivers and traditional restrictions on women for driving except in some small economic elite where women can drive.

Drivers between the ages of 30 -39 sustained more injuries than any other age groups. This age group being most active, working is more prone for RTAs. Kochar et al[7] has reported that maximal fatal accidents have occurred in the age group of 31–40 years. Bener[8] recorded high prevalence between 10 to 40 years while the nodal age range of Jha et al[3] was from 20 to 49 years. The least incidence was in 60 - 69 years age group, accounting for 3.52% of all injury cases. Jha et al[3] and Ossie et al[5] reported similar findings.

Most of the incidences in study period occurred in 2018, with 68 (40.0 %) cases followed by 2017, 55(32.35%) indicating the increase in number of driver fatalities. Rise in the number of vehicles and rapid industrialisation has led to overall increase in RTAs.

Among the type of injuries recorded, fractures were at the pinnacle accounting for 45.29% of all injuries, followed by internal haemorrhage, 23.52%. Similar findings were reported by Jha et al[3] and Supriya et al[9]. In contrast Seid et al[4] and Ossei et al[5] recorded higher incidence of head injuries. The present study found that lower limbs (22.94%) were the commonest site for fracture, followed by fracture of upper limb (10.58%) and skull (6.47%). Similar findings were reported by Abdul Hameed Ali et al[10].

According to the site of injuries, extremities (upper and lower limbs) accounted for 45.61% of all injuries followed by head injuries (19.29%), thoracic injuries (12.28%), pelvic injury (8.77%), abdominal injury

(7.01%) and neck injury (4.69%). Similar findings were recorded by B. Mishra et al[11], P.L. Chalya[12] and P.J. Bhuyan et al[13].

Majority of the driver deaths, 135 (79.41%) were due to collision accidents with other vehicles or fixed objects. 35 (20.58%) cases were due to overturning accidents. Similar results were seen in study by Abdul Hameed Ali et al[10].

Table 1: Year wise distribution of RTAs involving drivers

Year	RTA in which drivers were involved	Drivers dead in RTA
2016	270	47
2017	303	55
2018	331	68
Total	904	170

Table 2: Year, Age and Sex wise distribution of cases

Year	20-29(%)	30-39(%)	40-49(%)	50-59(%)	60-69(%)	Total (%)
2016	13	16	11	6	1	47
2017	15	18	11	8	3	55
2018	17	25	12	12	2	68
Total	45	59	34	26	6	170
Sex						
Male	45	57	33	26	6	167
Female	-	2	1	-	-	3
Total	45	59	34	26	6	170

Table 3: Types of injuries sustained by the drivers

Type of injury	Number	Percentage
Fracture	77	45.29
Dislocation	10	5.88
Crush injury	04	2.35
Cut wound/laceration	23	13.5
Blunt injury	16	9.41
Internal haemorrhage	40	23.52
Total	170	100

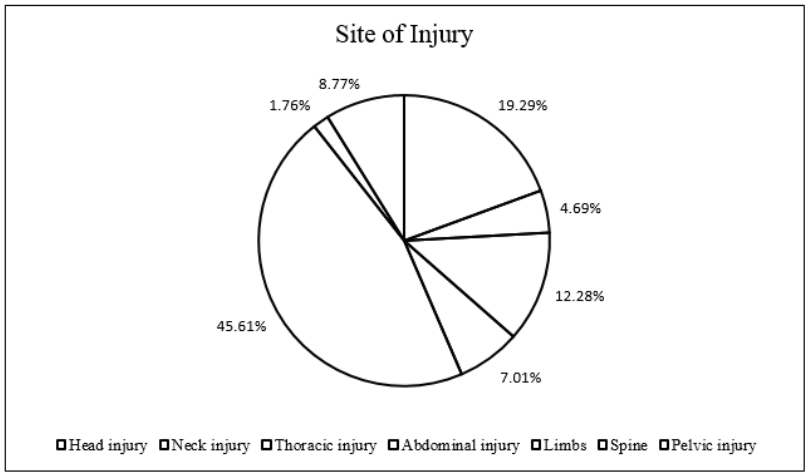

Figure 1: Distribution of Injuries according to the sites

Table 4: Distribution of cases according to accident type

Accident type	2016	2017	2018
Overturning accident	13	10	12
Collision with other vehicles	21	27	35
Collision with fixed objects	15	16	21
Total	49	53	68

Conclusion

This study evidently points to an increasing mortality in RTAs especially among the drivers. Most of the drivers are the sole bread earners of their families. Thus the loss of sole bread earner is devastating to their family, leading to fall in income of the household and lowering of the living standards. This knowledge of injury pattern could be helpful while planning emergency and trauma care services and in designing and implementation of safety measures. There is also a need for road safety education directed towards the road users and strict adherence to driving rules and regulations.

Conflict of Interest: None

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