

JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article :

KHAJURIA B, SHARMA R, VERMA A. A PROFILE OF THE AUTOPSIES OF ROAD TRAFFIC ACCIDENT VICTIMS IN JAMMU. Journal of Clinical and Diagnostic Research [serial online] 2008 February [cited: 2008 February 4]; 2:639-642

Available from

[http://www.jcdr.net/back_issues.asp?issn=0973-709x&year=2008&month=February&volume=2&issue=1&page=639-642 &id=149](http://www.jcdr.net/back_issues.asp?issn=0973-709x&year=2008&month=February&volume=2&issue=1&page=639-642&id=149)

ORIGINAL ARTICLE

A Profile of the Autopsies of Road Traffic Accident Victims in Jammu

KHAJURIA B*, SHARMA R**, VERMA A***

ABSTRACT

BACKGROUND: RTA (road traffic accident) is the third major preventable cause of all deaths.

AIMS: To study the demographic and injury profile in autopsy cases with an alleged history of RTA.

DESIGN: The retrospective observational study.

SETTING: Forensic Medicine and Toxicology Department of a tertiary care hospital.

SUBJECTS AND METHODS:

All autopsies of RTA victims which were performed between January 2000 to December 2005, were analysed for sex, age, time of RTA, type of vehicle, position of victim during RTA, nature of injury, and cause of death.

STATISTICAL ANALYSIS : All parameters were expressed in percentage.

RESULTS: A total of 249 RTA victims were referred for autopsy during the years 2000 to 2005. One hundred and thirty two (53.01%) victims were between 20-40 years of age, males constituted 85.14% of the total victims, and light vehicles were involved in 61.05% RTAs. 54.22% RTAs occurred during the daytime, between 9 AM to 8 PM. A total 609 type of injuries (organs involved) were reported in 249 victims. Limb injuries constituted 189 (31.08%) of the total injuries, followed by injuries involving head, thorax, abdomen, pelvis and spine. Among head injuries, fractured skulls occurred in 68.85%, Subdural Haemorrhage in 79.31%, Subarachnoid Haemorrhage in 63.33%, Extradural Haemorrhage in 48.85%, Intra-cranial injuries in 21.26%, and Contusion in 35.63% of the victims. Head injury accounted for 173 (69.48%) of deaths, and haemorrhagic shock for 61 (24.49%) of deaths.

CONCLUSION: Various preventive measures like speed control, helmet use, no driving under alcohol influence etc., enforcing road safety regulations, and improving emergency medical services could be used to control the increasing toll of deaths due to RTA.

Key Words: RTA, Autopsies, Injury profile.

*Dept. of Forensic Medicine, **Dept. of PSM, Govt Medical College, Jammu, ***Surgeon , Accidental Hospital Vijay Pur-J&K Health Services-Jammu-India.

Corresponding Address:

Dr Rashmi Sharma MD, DMCH. Asstt Surgeon , Accidental Hospital Vijaypur-J&K Health Services-Jammu-India. 216-A Gandhi-Nagar Jammu- 180004. e.mail: rashmichams@yahoo.com

Introduction

Each year, road traffic injuries take the lives of 1.2 million people around the world and seriously injure millions more.[1] The death rate is highest, and still growing in low and middle-income

countries, where pedestrians, motorcyclists, cyclists and passengers are especially vulnerable.[1] Moreover, estimated costs of road traffic injuries are between 1% and 2% of GNP per annum in these countries, and accounts for a

loss of approximately US\$ 65 billion every year; almost twice the total development assistance received worldwide by developing countries.[1] India accounts for about 10 percent of road accident fatalities worldwide, 85% of all road accident deaths occur in developing countries, and nearly half in the Asia-Pacific region.[1] According to the World Health Report 2002, 30.3% morbidity and 28.7% mortality occurred in the South-East Asia Region due to injuries.[2], [3] According to a report of the Ministry of Home Affairs, Government of India, one accident occurs every two minutes, and one suicide every five minutes in India, with the accident rate corresponding to 45 per 100 000 population.[3] However, there is underreporting of traffic injuries by the health sector in India.[3] As there is no study available regarding injury profile in road accident deaths from our part of the country; the present study was conducted to study the demographic and injury profile in autopsy cases with alleged history of Road Traffic Accidents (RTAs).

Material and Methods:

The present retrospective study was conducted on 249 autopsy cases brought to the Forensic Department of a tertiary care institute during the period between years 2000 – 2005, with an alleged history of RTA. For the purpose of the study, a RTA was defined as an accident which took place on the road between two or more objects, one of which must be any kind of a moving vehicle. Various study variables analyzed were sex, age, time of RTA, type of vehicle (light vehicle like two wheelers, three wheelers, car, jeep etc. and heavy vehicle like truck, bus, train, tractor) and position of the victim during RTA (occupant/ pedestrian/ driver), nature of injury, and cause of death. The data sources were statements of patient (dying declaration), history from relatives and friends, and police investigation reports. All the parameters were expressed in percentage and numbers. The international classification of diseases and related health problems (ICD-10) was used in coding morbidities and mortalities resulting from RTA.[4] In ICD-10, transport accidents (V01-V99) have been regrouped by the type of injured person (i.e. pedestrian, pedal cyclist, motorcycle rider, car or bus occupant) and mode of transport. All the parameters were presented in percentage.

Results:

A total of 249 RTA victims were referred for autopsy during the years 2000 to 2005. One hundred and thirty two (53.01%) victims were between 20-40 years of age; but only 31 (12.45%) victims were below 20 years of age [Table/Fig 1]. Males constituted 85.14% of the total victims, and light vehicles were involved in 61.05% RTAs [Table/Fig 1],[Table/Fig 4]. Two wheelers were involved in 102 (42%) of RTA. One hundred and thirty five (54.22%) RTA occurred during the daytime, between 9 AM to 8 PM .

Table/Fig 1
Demographic profile of RTA victims (n= 249).

Characteristics	Number of victims (%)
<i>Age</i>	
<20 yrs	31 (12.45%)
20-40 yrs	132 (53.01%)
41-60 yrs	62(24.89%)
>60 yrs	24 (9.63%)
<i>Sex</i>	
Male	212 (85.14%)
Female	37 (14.86%)
<i>Position during RTA</i>	
Occupant	69 (18%)
Driver	42 (16.68%)
Pedestrian	138 (55.32%)
<i>Vehicle</i>	
Heavy	97 (38.95%)
Light	152 (61.05%)
<i>Time</i>	
9 PM-8AM	114 (45.78%)
9AM-PM	135 (54.22%)

RTA= road traffic accidents, n=number,
Light vehicle = two wheelers, three wheelers,
Car, jeep etc., heavy vehicle= like truck, bus, train, tractor.

A total of 609 injuries (organs involved) were reported in 249 victims. Limb injuries constituted 189 (31.08%) of the total injuries, followed by injuries involving head, thorax, abdomen, pelvis, and spine [Table/Fig 2]. Among head injuries Subdural Haemorrhage was most common. [Table/Fig 3]..

Discussion:

India has 1% of vehicles in the world; but it accounts for about 6% of the total cases of unintentional injuries[3]. In the present study, males constituted 85.14% and females constituted only 14.86% of the total victims. Moreover, age between 20-40 years was found to be more vulnerable to RTA. Similarly, in a study from South India, there were 83% males and 17% female accident victims[2]. Labourers were the highest (29.9%) among the victims[2]. The occupants of various vehicles constituted the large (45%) group of the victims. Among the motorized

Table/Fig 2
Pattern of injuries and cause of death in RTA victims (n= 249).

Site of injury (n=608)	Number of patients (%)
Limbs	189 (31.08%)
Head	174 (28.62%)
Thorax	110 (18.09%)
Abdomen	107 (17.59%)
Pelvis	23 (3.78%)
Spine	5 (0.82%)
Cause of death (n=249)	Number of victims (%)
Head injury	173 (69.48%)
Hemorrhagic shock	61 (24.49%)
Multiple causes	7 (2.82%)
Thromboembolism	3 (1.20%)
Sepsis	3 (1.20%)
Spine injury	2 (0.8%)

n=number

vehicles, two wheeler drivers were more (31.1%) involved in accidents. Out of 254 drivers, 14.9% were found to have consumed alcohol. Being knocked down was the common mode of accidents[2]. However, in our study, a majority of victims were pedestrians (55.32%). Previously a study from Delhi reported 69% injuries (out of total 680 traffic injuries) in the age group of 15 to 35, and males were four times more affected than females[3]. The business group had a higher incidence, followed by the service group and the labour group[3]. In a study from Maharashtra, maximum cases of RTA were among males (83.20%), and in the age group of 20 to 39 years (51.20%)[5]. Banerjee K.K. from Delhi reported 81.80% victims of thoraco-abdominal injuries all of which were in males, and of all, 40% were in the age group of 21-30 years[6]. A study from Nepal also reported 16-30 years as commonest age-group involved in RTA. Males sustained craniofacial injuries about 4 times more than females in this study[2].

A few studies reported pedestrians as the majority of victims involved in RTA, as reported in our study[5],[7]. In our study, limb injuries constituted 31.08% of the total injuries, followed by injuries involving head, thorax, abdomen, pelvis and spine. Among head injuries, fractured skulls occurred in 68.85%, Subdural Haemorrhage in 79.31%, Subarachnoid Haemorrhage in 63.33%, Extradural Haemorrhage in 48.85%,

Intra-cranial injuries in 21.26%, and Contusion in 35.63% of the victims. In an earlier study from India, head was the commonest site to be injured in RTA, and Subdural Haemorrhage was the commonest haemorrhage. Laceration of brain tissue was highest among all brain tissue injuries, as reported in our study[5]. In a study from Nepal, 39% of medico-legal cases that were brought to the emergency department, were of craniofacial trauma (in 70% cases, cause is RTA)[2]. Ganveer GB and Tiwari RR also reported in their study that out of total 423 subjects, 363 (85.8%) were males, while only 60 (14.2%) were female subjects, and a majority of the victims (75%) were in the age group 18- 37 years[8]. Moreover, in the above study, two wheelers and LMV were the most common vehicles involved, and fracture of the bones was the common injury afflicted in accidents, as reported in our study[8]. In the present study, head injury was the major cause of death (69.48%), as reported earlier by Chaudhary B L, et al[5].

RTA is one of the major causes of disability and death all over the world. Every 4 minutes, a person killed or injured in India due to RTA[1] Behaviour of the road user, vehicle characteristics, and traffic environment, coupled with human errors, have been cited as the main causes. The All India road data shows that 83.5% of the accidents were due to the driver's fault. Other contributory factors were: mechanical defects in vehicles, pedestrian fault, fault of the passenger, bad roads, and bad weather[9]. A study in Bangalore showed that 44% of the drivers of two wheelers which crashed, were under the influence of alcohol[9].

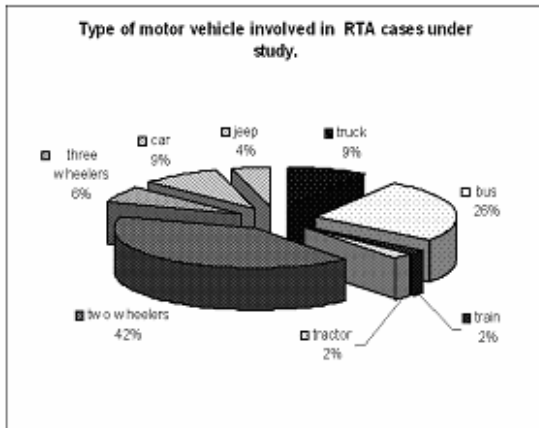
Table/Fig 3
Pattern of head injuries in RTA victims (n=173).

Injury	Number of victims	%
Fracture Skull	120	68.85
Extradural Hemorrhage	85	48.85
Subdural Hemorrhage	138	79.31
Subarachnoid Hemorrhage	76	63.33
Intra-cranial	37	21.26
Contusion	62	35.63

RTA is the third major preventable cause of all deaths[8]. Various preventing measures like avoiding high speeding and driving under the influence of alcohol; promoting the use of

helmets, seat belts and other restraints, ensuring that people walking and cycling are more easily visible, improving the design of roads and vehicles, enforcing road safety regulations, and improving emergency medical services, could be used to control the increasing toll of deaths due to RTA. It is important to increase awareness about road safety among road users, planners, and engineers.

Table/Fig 4



RTA=road traffic accident, two wheelers =102,
 Bus =64, three wheelers=16,
 Car=23, truck= 23, jeep =11, train=4, tractor= 6.

References

[1] World Health Day 2004: Road Safety is No Accident. <http://www.thinkroadsafety.gov.uk>-accessed on 2-9-2007.

[2] Jha N, Srinivasa DK, Roy G, Jagdish S. Epidemiological study of road traffic accident cases: A study from South India. *Indian J Community Med* 2004; XXIX: 20-4.

[3] Verma PK, Tewari KN. Epidemiology of Road Traffic Injuries in Delhi: Result of a Survey. *Regional Health Forum WHO South-East Asia Region* 2004; 8(1), © WHO Regional Office for South-East Asia 2007.

[4] World Health Organization. *International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10)*. 2nd ed. Geneva, Switzerland: World Health Organization; 2005

[5] Chaudhary B L, Singh D, Tirpude B H, Sharma R K, Meel V. Profile of Road Traffic Accident Cases in Kasturba Hospital of M.G.I.M.S., Sevagram, Wardha, Maharashtra. Vol. 5, No. 4 (2005-10 - 2005-12)), www.indmedica.com -accessed on 2-9-2007.

[6] Benerjee KK, Agrawal BB, Kohli A. Study of thoracoabdominal injuries in a fatal road traffic accident in north-east Delhi. *J For Med Tox* 1998; 14 (1): 56-62.

[7] Agnihotri AK, Joshi HS, Tsmilshina N. Study of Craniofacial Trauma in a Tertiary Care Hospital, Western Nepal. *Medico-Legal Update* Vol. 5, No. 1 (2005-01 - 2005-03), www.indmedica.com -accessed on 2-9-2007.

[8] Ganveer G.B., Tiwari R.R. Injury pattern among non fatal road traffic accident cases: a cross sectional study in central India. *Ind J Med Sci* 2005; 59(1): 9-12.

[9] Jagnoor. Road Traffic Injury Prevention: A Public Health Challenge. *Indian J Community Med* 2006; 31:129-31.