



Original Research Article

Injury Pattern Among Road Traffic Accident Cases at Community Health Center Chevella: A Hospital Based Study

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ABSTRACT

Background: According to the World Health Organization (WHO), road traffic injuries are the sixth leading cause of death in India with a greater share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle-aged population.

Aims and Objectives: To know the prevalence of injuries present among the road traffic accident cases.

Materials & Methods: A hospital based descriptive study conducted at community health center Chevella in year of 2014, involving 900 victims of road traffic accidents and studied demographic characteristics of victims and injury pattern.

Statistical analysis: Percentages, and Chi-square.

Results: The mean age of victims was 31.5 years. Pedestrians and drivers were 22% and 35% of RTA victims respectively. Lower limbs (34.44%), upper limbs (28.66%) and face (17.58) were common sites for abrasion while lacerations were common on face (29.69%), head (28%) and lower limbs (24.36%). Multiple superficial injuries were common on lower limbs (37.14%) and face (32.85%), while crush injuries were most commonly seen on lower limbs. A total of 461(51.2%) victims had mild injuries. Moderate injuries were seen in 433(48.1 %) victims and severe injuries in 6 victims. but the difference was not significant.

Conclusion: As this study shows head injuries were common among motorized two wheelers (45.58%).

Keywords: RTA, Abrasions, Lacerations, Chevella.

INTRODUCTION

A Road Traffic Accident (RTA) can be defined as, 'An event that occurs on a way or street open to public traffic; resulting in one or more persons being injured or killed, where at least one moving vehicle is involved. Thus RTA is a collision between vehicles; between vehicles and pedestrians;

between vehicles and animals; or between vehicles and geographical or architectural obstacles.' Road traffic accidents are a human tragedy. They involve high human suffering and socioeconomic costs in terms of premature deaths, injuries, loss of productivity, and so on. ^[1]

In India, the motor vehicle population is growing at a faster rate than the economic and population growth. The surge in motorization coupled with expansion of the road network has brought with it the challenge of addressing adverse factors such as the increase in road accidents. [1] According to the World Health Organization (WHO), road traffic injuries are the sixth leading cause of death in India with a greater share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle-aged population. [1] Road traffic injuries also place a huge burden on the health sector in terms of pre-hospital and acute care and rehabilitation. [1]

During 2008, Road Traffic Injuries (RTI) ranked fourth among the leading causes of death in the world. [2] Nearly 1.3 million people die every year on the world's roads and 20 to 50 million people suffer non-fatal injuries, with many sustaining a disability as a result of their injury. [2] Road traffic injuries are the leading cause of death among young people aged 15-29 years and cost countries 1-3% of the gross domestic product (GDP). [2]

Ninety-one percent of the world's fatalities on the roads occur in low-income and middle-income countries, even though these countries have approximately half of the world's vehicles. Half of those dying on the world's roads are 'vulnerable road users': Pedestrians, cyclists, and motorcyclists. Only 28 countries, representing 416 million people (7% of the world's population), have adequate laws that address all five behavioural risk factors (speed, drink-driving, helmets, seat-belts, and child restraints). If no action is taken, road traffic crashes are predicted to result in the deaths of around 1.9 million people annually by 2020. [2]

As per bibliometric analysis, India contributed only 0.7 per cent papers on road traffic injuries and had less than one article

on road traffic injuries per 1,000 road traffic related deaths. To be effective, policies on injury prevention and safety must be based on local evidence and research.

Aims & Objectives

To know the prevalence of injuries present among the road traffic accident cases.

Materials & methods:

Study design: A hospital based Descriptive study.

Setting: Study was performed in community health center Chevella.

Study duration: 1st January 2014 to 31st December 2014

Participants: 900 victims of road traffic accidents reported in one year (2014). Study variables: Demographic characteristics of the victims and injury pattern.

Statistical analysis: Percentages, and Chi-square. The study group consisted of all the road traffic accident victims reporting to Community health center Chevella casualty in the above one year period. For the purpose of the study, an 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 moving vehicle. Any injury on the road without involvement of a vehicle (eg. a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (e.g. persons getting injured while washing or loading a vehicle) or deaths due to RTA were excluded from the study. The victims of the accidents were interviewed to obtain the information about the circumstances leading to the accident. A pre-tested proforma specially designed for this purpose was used for interviewing the accident victims, either in the casualty or in the wards of CHC Chevella. Where the condition of the victims did not warrant the interview, the relatives or attendants were interviewed. The information collected consisted of personal

identification data, protective gear worn and category of road users. In addition, the type and severity of injury suffered by the victims was graded using the "Trauma Index". [3] The treatment given and the outcome were also recorded for each case. The medico legal records and case-sheets of the victims were referred for collecting additional information and where necessary for cross checking.

RESULTS

Among 644 RTAs involving 900 victims, excluding 32 fatalities from 30 RTAs, reported at community health center Chevella during the study period. Table -I: The majority of victims belong to the age group 20-29 years (244 cases), females are less involved than men. There were 747(83%) males and 153(17%) female casualties. The mean age of victims was 31.5 years. Table- II: Pedestrians and drivers were 22% and 35% of RTA victims respectively. Motorised two wheelers and four wheelers were involved in RTAs in which 48(24.24%) and 42(21.22%) pedestrians were injured respectively. A total of 315 drivers were involved in RTAs. Table- III: The limbs and the face were the

Age	Male (%)	Female (%)	Total (%)
10-19	131(17.55)	26(17)	158(17.55)
20-29	244(32.66)	38(25)	282(31.33)
30-39	169(22.62)	32(21)	200(22.22)
40-49	115(15.39)	25(16)	140(15.56)
50-59	88(11.78)	32(21)	120(13.34)
Total	747(100)	153(100)	900(100)

most commonly affected areas to suffer external injuries. Lower limbs (34.44%),

upper limbs (28.66%) and face (17.58) were common sites for abrasion while lacerations were common on face (29.69%), head (28%) and lower limbs (24.36%). multiple superficial injuries were common on lower limbs (37.14%) and face (32.85%), while crush injuries were most commonly seen on lower limbs. Table -IV: Head injuries were the commonest form of internal injuries seen in victims (34.1%) followed by injuries to the lower limbs (13.7%) and face (10.7%). Injuries to the chest (8.5%), pelvis (8.2%) and upper limb (8.1%) were seen in roughly equal proportion of victims. Others sites were back (7.65%), spine (4.3%) and neck (0.9%). A total of 221 fractures were noted among the victims. The commonest site of fracture was the lower limb (43.4%), followed by upper limb (19.0%) and facial bones (10.9%). Other sites were ribs (7.7%), clavicle (6.8%), skull (5.4%), pelvis (3.6%), scapula (2.3%) and spine (0.9%). Table -V: The severity of injuries suffered by the victims was graded according to the "Trauma Index". According to this index injuries are classified as minor injuries (0-7), moderate injuries (8-18) and severe injuries (more than 18). A total of 461(51.2%) victims had mild injuries. Moderate injuries were seen in 433(48.1 %) victims and severe injuries in 6 victims. Males as compared to females had a higher number of mild and moderate injury scores but the difference was not significant. Since lack of investigating infrastructures all the cases were referred to higher centers for further treatment.

Types of vehicle	Pedestrians
Motorized two wheelers	59(29.80)
Three wheelers	9(4.54)
Four wheelers	42(21.22)
Bus	25(12.62)
Truck	43(21.72)
Tractor	9(4.54)
Bullock cart	11(5.56)
Total	198(100)

Site	Abrasion (%)	Laceration (%)	Multiple superficial injuries (%)	Crush injuries (%)
Head	67(7.9)	200(28)	4(5.72)	0
Neck	3(0.35)	3(0.43)	0	0
Chest	40(4.71)	4(0.57)	1(1.43)	0
abdomen	15(1.76)	3(0.43)	1(1.43)	0
Pelvis	15(1.76)	15(2.1)	0	0
Upper limb	243(28.66)	103(14.42)	15(21.43)	6(14.29)
Lower limb	292(34.44)	174(24.36)	26(37.14)	30(71.42)
Face	149(17.58)	212(29.69)	23(32.85)	6(14.29)
Back	24(2.84)	0	0	0
Total	848(100)	714(100)	70(100)	42(100)

Types of different vehicles	n(%)
Pedestrians	84(22.52)
Two wheeler riders	170(45.58)
Bus and trucks	56(15.01)
Four wheelers	38(10.19)
Others	25(6.7)
Total	373(100)

Score	Male No.(%)	Female No.(%)	Total No.(%)
0-7-A*	374(50.1)	87(56.9)	461(51.2)
0-18-B*	367(49.1)	66(43.1)	433(48.1)
>18-C	6(0.8)	0	6(0.7)
Total	747(100)	153(100)	900(100)

*p>0.05

DISCUSSION

In the present study the highest numbers of RTA victims (31%) were found between the age group of 20-29 years. Similar results were reported by others also.^[4,5] Whereas, some studies have found the age groups most commonly involved were 16-30 years and 15-35 years respectively.^[6,7] The people of the 3rd decade for age group were most commonly involved in RTAs.^[8] The accident rates were 4.9 times higher in males than in females according to this study. This was also observed in Delhi, whereas, another study from Delhi has reported very high male and female ratio (9:1).^[8] This study found that more than 53% of the victims were in the age group between 20-40 years. This shows that the people of the most active and productive age group are involved in RTAs, which adds a serious economic loss to the community. Similar observations were also made by others.^[9,10] It was observed that 80% of the

victims involved in RTAs were males.^[11] Males are much more exposed to RTAs than females. In this study, pedestrians constituted 22% of the road users involved in RTA, followed by two wheeler riders (45.58%). Similar results were also observed in Delhi, Haryana, Aligarh and Madras.^[11] Among the motorized two wheelers, moped drivers were more commonly involved in RTAs. This could be due to the higher speed, which can be achieved over short distances and less stability of the vehicle. One of the most common modes of transportation used by people is the bus and this is reflected by the fact that bus occupants constituted the highest number (48%) of RTA victims. In the present study, 15% of the drivers involved in RTA had consumed alcohol. This is a higher proportion than 4.6% and 8%, reported by others from Delhi.^[12] The role of alcohol in impairing driving ability is well documented. Also the impairment increases

as the blood alcohol level rises. In addition, the risks of accidents are higher in youngsters and elderly people for similar blood alcohol levels. Abrasions and lacerations were the commonest types of injuries among the external injuries noted in this study. Similar results were also observed by others. [13] Head injury was the highest among the internal injuries noted in this study, a feature also reported by other Studies. [14] Two wheelers and pedestrians suffered the highest number of head injuries, followed by motorized two wheeler riders. The pedestrians and bicyclists in most of the instances were knocked down by another vehicle leading to head injury. Helmet was not used by any motorized two wheeler user. This could be the possible reason for head injury among them. Among fractures, present study found that lower limbs were the commonest site for fracture, followed by fracture of upper limbs and facial bones. But in another study it was reported that the highest numbers of fractures were in upper limbs followed by lower limbs and facial bones. However, their study was confined to only two wheeler accidents, whereas, the present study takes into account all types of road accidents.

CONCLUSIONS AND RECOMMENDATIONS

As this study shows head injuries were common among motorized two wheelers (45.58%) and none used Helmet. The use of properly designed helmet should be made compulsory especially among the riders of motorized two wheelers. This might be effective in reducing head injuries. Prompt and adequate ambulance service should be provided to the victims with the help of government and other voluntary agencies. Computerization and use of International Classification of Diseases code in the hospitals would help in preparation of

a good database for future studies and other uses.

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