

Research Article

Retrospective Study of Pattern of External Injuries in Road Traffic Accidents

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Abstract

Retrospective study of road traffic accident cases during the period January 1st 2010 to 31st December 2012 conducted in Sri Siddhartha Medical College, tertiary care centre, Tumkur, Karnataka, India. Patients with alleged history of road traffic accidents brought to the casualty of Sri Siddhartha Medical College were included in the study. Road Traffic Accidents (RTA) are increasing in an alarming rate throughout the world and causing increased morbidity and mortality among people. Patients in RTAs sustain varieties of injuries such as abrasions, contusions, lacerations and fractures, which may be fatal or nonfatal. The present study conducted to know the pattern of injuries sustained in patients of RTAs, patient's age and sex. Implementation of safety measures to prevent the incidence of RTAs is very much essential.

Keywords: RTA; Injuries; Vehicle.

1. Introduction

Road traffic accident (RTA) is any vehicular accident occurring on the roadway that is originating on, terminating on, or involving a vehicle partially on the roadway¹. This includes collision of an automobile with a pedestrian, or another automobile or with a non-automobile on the roadway or fall from a moving vehicle causing injuries or death of the involved individuals. With modern lives becoming increasingly busy, automobiles have become an invariable means of transport. Road traffic injuries are expected to take third place in the rank order of disease burden by the year 2020².

Worldwide the number of people killed in road traffic crashes each year is estimated to be around 1.2 million, while the number of injured could be as high as 50 million³. Accidents represent a major epidemic of non-communicable disease in the present century. In developing countries, the morbidity and mortality burden is increasing due to road traffic injuries. RTAs act as a major epidemiological as well as medico-legal problem. This is due to the tremendous increase in the number of vehicles, high-speed technology along with other contributing factors like, poor roads, intoxicating influence of alcohol or drugs, inexperienced drivers without proper driving license, ignorance or intentional violation of traffic rules etc.

Victims in RTAs sustain varieties of injury, external as well as internal. External injuries may be abrasions, lacerations, contusions etc. The studies of injuries help in implementation of measures to prevent fatalities due to RTAs. Therefore, here is an attempt to analyze the pattern of road traffic accidents by retrospective study.

Objectives: To know: i) The age and sex wise distribution of RTA cases. ii) Pattern of injuries sustained. iii) Type of vehicle involved. iv) Time and season of occurrence.

2. Methodology

The study material comprised of cases of RTA who sustained injuries and subsequently brought to the casualty of Sri Siddhartha Medical College, Tumkur, Karnataka details which have been entered in medico-legal register from 1st January 2010 to 31st December 2012. The total number of cases studied was 518. Controversial road traffic accidents cases and visceral injuries have been excluded from the study.

3. Observation and results

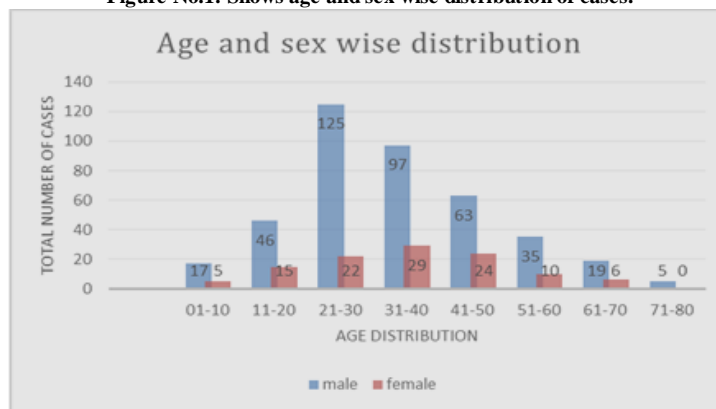
Out of 518 cases studied due to road traffic accidents, males outnumbered the females in total number of cases that is 407 (78.57%) male cases compared to 111 (21.43%) female cases.

Table 1: Shows age and sex wise distribution of cases

Age	Male	%	Female	%	Total	%
01-10	17	4.17	5	4.5	22	4.247
11-20	46	11.3	15	13.51	61	11.77
21-30	125	30.71	22	19.81	147	28.37
31-40	97	23.83	29	26.12	126	24.32
41-50	63	15.47	24	21.62	87	16.79
51-60	35	8.59	10	9	45	8.68
61-70	19	4.66	6	5.4	25	4.82
71-80	5	1.22	0	0	5	0.965
Total	407		111		518	

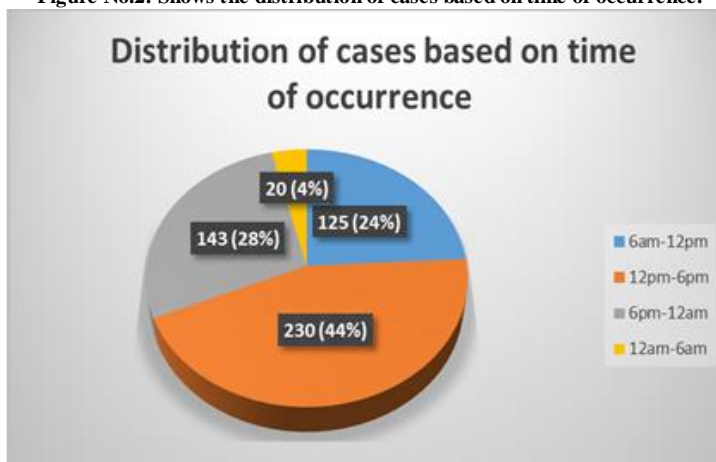
Total numbers of cases were 518, of which 407 cases were males and 111 were females

Figure No.1: Shows age and sex wise distribution of cases.



Above chart shows that in our study, males comprised the majority and constituted 407 cases (78.57 percent) compared to females 111 cases (21.43 percent). Majority of cases were found in the age group of 21-40 years, i.e. 273 cases (Males 222 and females 51).

Figure No.2: Shows the distribution of cases based on time of occurrence.



Above chart shows that maximum number of cases occurred during the period 12pm to 6pm (230 cases) followed by 6 pm to 12am (143 cases).

Table 2: Shows distribution of cases based on type of vehicle involved.

Vehicle	Number of cases	%
Pedestrian	124	23.9
Bicycle	15	2.89
Two wheeler rider	194	37.45
Two wheeler pillion	78	15.05
Three wheeler	45	8.68
Four wheeler	32	6.17
Heavy motor vehicle	30	5.79
Total no. of cases	518	

Above table shows RTAs were more common among two wheeler users (272 cases including both rider and pillion) followed by pedestrian (124 cases).

Table 3: Shows distribution of injuries based on pattern and region involved

Region	Abrasion	Contusion	Laceration	Fractures
Head	113	55	161	17
Thoraco-abdominal	17	25	5	19
Extremities	268	122	109	106
Spine	09	18	0	05
Total	407	220	275	147

Above table shows, extremities i.e., upper and lower limbs were more prone for injuries, followed by head and abrasion was the more common type injury followed by laceration, contusion and fracture respectively.

4. Discussion

Population explosion coincides with increased incidence of accidents. Since accidents are multi-factorial in causation, there is a need for an inter-sectorial improvement to prevent accidents and to take care of the injured person.

In this study, among 518 cases male constitute 407 (78.57%) compared to 111 (21.43%) female cases. The male to female ratio was 3.66:1. Singh *et al*⁴ showed that male to female ratio was 9:1; Chaudhary *et al*⁵ showed that male to female ratio was 4.9:1. Dileep *et al*⁶ study shows that male to female ratio was 6.63:1. The reason for male predominance could be due to active lifestyle with more mobility and frequent exposure to traffic hazards. Moreover, females have minimal outdoor activities as compared to males.

Most commonly involved age group in both sexes was 21-30 years (147 cases, 125 male and 22 females) followed by 31-40 years (126 cases, 97 males and 29 females); means age group 21-40 years shared 273 cases (52.07%). The maximum number of cases were young

adults as they are more ambulatory, hence exposed to greater risk as compared to persons belonging to other age groups. Present study and its results are in agreement with the studies conducted by various studies^{7,8}.

In our study maximum number of RTA cases occurred during the period 12pm to 6pm (230 cases) followed by 6pm to 12am (143 cases) where as in the study conducted by Bairagi *et al*⁹ showed that majority of accidents (30.26%) occurred in between 6 PM – 12 midnight followed by (25%) cases during 6AM -12 midday.⁹

Majority of cases of RTAs were more in spring season (40.15%) followed by rainy season (32.81%). This is in contrast with the study done by Kumar *et al*¹⁰ who found more cases in rainy seasons.

As India is a developing country, two wheeler is the more common mode of transportation in urban and rural population. In our study maximum number of cases occurred among two wheeler users (272 cases) followed by pedestrian (124 cases). This is against to the study done by Srivastav *et al*¹¹ and Mandal *et al*¹² where in pedestrians were the most common.

Among two wheeler users riders accounted for 194 (71.32%) cases followed by 78 (28.68%) cases of pillion rider. This is in agreement with the study done by Bairagi *et al*⁹. In this study extremities i.e., upper and lower limbs were more prone for injuries, followed by head region. In this study abrasion was the more common injury followed by laceration, contusion and fracture respectively. This is in agreement with the study done Bairagi *et al*⁹. In our study combination of injuries such as abrasion and laceration was more common, accounted for 123 cases followed by abrasion and contusion in 94 cases, and in 25 cases we observed combination of abrasion, contusion and laceration. Among 518 cases, we found 5 brought dead cases which were due to head injury.

5. Conclusion

Road traffic accidents are increasing at an alarming rate, causing the loss of valuable work force and resources and they occur due to imbalance between host (victim) or agent (vehicle) or environment (road). Improvement of driving conditions, roadway lights, displaying of traffic signs, creating more turn only lines at intersections and creating more divided highways needed. Strict enforcement of laws regarding driving of vehicles, wearing of helmets, applying seat belts are needed along with strengthening of the health facilities for the victims.

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