

Pattern of injuries in road traffic accidents cases reporting to accident and emergency department of a hospital in Maharashtra

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Abstract

Introduction: Roads are considered a sign of development bringing a lot of advantages to people of this planet. Yet, growth of road network has brought road crashes leading to premature deaths and frequently morbidity and disability of productive age group. A study has been designed to study the pattern of injuries and associated demographic factors.

Aim & Objective: To record the pattern of injuries after conducting the examination of the victims of Road Traffic Accident and study the demographic factors.

Results: A total of 226 patients were examined who were victims of road traffic accidents. Among victims 190 were male (84.07%) and 36 (15.93%) were female. 30.97% cases were seen in 21-30 years age group which was highest in different age distribution. Abrasions were most common in non fatal accidents (54.62%) followed by contusion (20.25%). The most common anatomical part to be injured is lower limb (37.39%) followed by upper limb and face. Among fractures, upper limb fractures (n=22) were more common than lower limb fractures (n=12). Most of the victims were two-wheeler riders ie 38.20%. The most common site of accident was the straight roads (45.13%) followed by highways.

Conclusion: It may be concluded that there is urgent need to address the epidemic carnage on the roads. Road traffic deaths are to a great extent preventable if due care is taken both by individual and also by the administrative authorities.

Keywords: Road Traffic Accidents, Injuries, Accident and Emergency Department.

Introduction

Among all traffic accident, road traffic accidents claim largest toll of human life and tend to be the most serious problem world over. During 1990s road traffic accident injuries ranked ninth among the leading causes of deaths in world. It is projected to become second leading cause by the year 2020 next to ischemic heart disease. About 3.5 million people die of unintentional injuries. Road traffic accidents claim 1.2 million lives.¹

In India, two-thirds of road traffic injury deaths are reported in the age group 15–44 years. In 2017, officially reported road accidents were 464,910, claiming 147,913 deaths and 470,975 injured persons, that is, 405 deaths and 1,290 injuries each day from 1,274 accidents. In the absence of trauma registry, adding unreported accidents, it is frightening to note this fairly high rate when compared with developed economies. An analysis of cause of death from 2002 to 2011 in a population ≥ 15 years of age at Ballabgarh showed that 14.4% of all deaths were due to external causes and RTIs consisted of almost one-third of all deaths due to external causes.³ Hence this study was undertaken to enlist what are the pattern of injuries in road traffic accidents who report to emergency department for treatment.

Aims & Objectives

1. To record the pattern of injuries after conducting the examination of the victims of Road Traffic Accident
2. To study the distribution of injuries in road traffic accidents in relation to selected demographic and

epidemiological factors namely age, sex, role of victim at the time of accident and place of accident.

Materials and Methods

Study Settings and Population

The study was conducted on all road traffic accident cases brought to accident & emergency department of hospital during the study period from Mar 16 to Apr 17.

Inclusion Criteria

All the cases of road traffic accident victims attending the emergency department during the study period.

Exclusion Criteria

Deaths due to RTA were excluded from the study.

Sample size with justification

All the cases reporting to the Accident & Emergency department of this hospital satisfying the objective of study during 01 year period were part of study a total of 226 cases were studied during the study period.

Data Collection and Analysis

Data were collected both from examination of patient and by interviewing patients and relatives. Examination findings were recorded as per aim & objective of study to study the pattern of injuries. A semi-structured interview pro forma was developed. The same was used for collecting data on various domains such as socio demographic characteristics,

vehicle related factors and accident site related factor. The interview schedule was translated in Marathi (local language) and back - translated to English to ensure consistency. The data gathered from study was entered in Excel sheet and analyzed using SPSS software version 23.

Results

A total of 226 patients were examined who were victims of road traffic accidents. Among victims 190 were male (84.07%) and 36 (15.93%) were female. 30.97% cases were seen in 21-30 years age group which was highest in different age distribution. Abrasions were most common in non fatal accidents (54.62%) followed by contusion (20.25%). Most of the victims were two wheeler riders i.e 38.20%. The most common site of accident was the straight roads (45.13%) followed by highways. Max injuries were seen in lower limbs (37.39%) followed by upper limbs (25.02%). Injury to face was third most common (13.14%). Abrasion was most common injury both in upper and lower limbs. Out of 39 fracture injuries 34 fractures were seen in upper and lower limbs combined.

Discussion

In our study (Table 1) it is found out that maximum number of victims of road traffic accidents who reported to emergency department were of age group between 21-30 years i.e 30.97%, followed by 21.23 % in age group 31-40 years and 11.06 % in the age group 41- 50 years. In a study published from Delhi⁴ it was found that max victims (47.4%) belonged to 16 – 30 years age group. Similar finding that the most vulnerable age group as regard to victim is in age bracket 20-30 years have been shown in studies from Pune,⁵ Shimla⁶ and Western Maharashtra⁷ also. This age is most exposed to roads for day to day necessity and also for work related purpose. It this age which commonly drives two wheelers and four wheelers and due to increased exposure, outcome also becomes directly proportional to exposure.

Present study (Table 2) shows that male were 84.07 % of the victims of road traffic accidents. In a study published at Amritsar it was found that, males were predominant victims with male to female ratio of 5.72:1⁸. Gharpure et al⁹ also had similar findings. In a study published at Khammam¹⁰ it was shown that 73.57% of the victims of road traffic accidents were males. All these studies corroborate the present study. It can be well said that higher percentage of male as victims of road traffic accidents can be attributed to more number of male presence on road.

The most common injury in our present study (Table 3) are abrasions (54.62%) followed by contusions (20.25%) and lacerations (16.55%). The most common anatomical part to be injured is lower limb (37.39%) followed by upper limb and face. Among fractures, upper limb fractures (n=22) were more common than lower limb fractures (n=12). In the

study at Vishakapatnam,¹⁰ 40.7% of cases had injury of lower limb and it was the most common site of injury. In a study published in Mangalore¹¹ the most common site of injury was abdomen (49%). Al-Thaifani et al¹² reported that the most common site of injury was lower limb (42.18%). Similar findings as lower limb being the most common anatomical region to be injured has been reported from studies done in Tanzania¹³ and Assam¹⁴. The findings from our study are in agreement with other studies where the most common site for injury was lower limb. Lower limb both covers largest area and also bears the first brunt of force in majority of road traffic accidents. Also both pedestrians and two wheeler riders are always vulnerable to lower limb injuries.

In our present study (Table 4) two wheeler riders were the most common victims (32.74%) followed by pedestrians at 24.77%. In a study at Khammam¹⁰ it was also found that 40.71% of victims were using two wheelers, 18.22% were pedestrians and 16.7% of cases were using four wheelers. This finding was similar to study done by Shah et al in Ahmedabad who found that 56% were injured by two wheelers.¹⁵ Our finding was higher when compared to study done in Pondicherry who observed that 24.4% were injured by two wheelers.¹⁶ The presence of both two wheelers and pedestrians on Indian roads are highest compared to other groups.

In our present study (Table 5) maximum spots where road traffic have taken place are straight roads. The percentage is 45.13 %. Highway accounted to 18.58% of accidents. Similar findings have been found in the study of Misra P et al⁴ which has revealed 56% of the road traffic accidents had been on straight roads. Our study is consistent with this study.

Table 1: Age Distribution

Age group	Number of Cases	Percentage
0- 10 years	02	0.88
11 - 20 years	54	23.89
21- 30 years	70	30.97
31 - 40 years	48	21.23
41-50 years	25	11.06
51-60 years	12	5.30
61 – 70 years	10	4.4
Above 70 years	05	2.21

Table 2: Sex Distribution

Number of Males	Percentage of Males	Number of Females	Percentage of Females
190	84.07	36	15.93

Table 3: Pattern of Injuries

Anatomical Region	Abrasion	Contusions	Lacerations	Fractures	Others	Total
Head	30	22	36	Nil	06	94
Neck	04	02	01	Nil	01	08
Face	84	19	28	01	02	134
Chest	42	26	03	04	06	81
Abdomen	23	22	16	Nil	08	69
Upper Limbs	156	35	32	22	12	257
Lower Limbs	222	82	54	12	14	384
	561	208	170	39	49	1027

Table 4: Victims Role at the time of Accident

Victims Role	Number of Cases	Percentage of Cases
Pedestrian	56	24.77
Two wheeler Rider	74	32.74
Two wheeler Pillion	28	12.38
Four wheeler Driver	42	18.58
Four wheeler passenger	26	11.50

Table 5: Place of Accident

Place of Accident	Number of Cases	Percentage
Straight Road	102	45.13
Highway	42	18.58
Wrong Direction	22	9.73
U Turn	32	14.15
Busy narrow streets	28	12.38

Conclusion

It may be concluded that there is urgent need to address the epidemic carnage on the roads. Road traffic deaths are to a great extent preventable. Traffic safety education should be given in schools for production of skilled and responsible drivers/road users in future. Moreover, the recommendations from the world report on road traffic injury prevention should be considered and promptly implemented. The awareness among both users of road and administrators about road travel discipline should be very high in order to curb the ever rising epidemic of road traffic accidents.

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Conflict of Interest: None.

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