

Injury pattern of road traffic accident cases in a rural hospital of central Uttar Pradesh

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Received March 23, 2015. Accepted Apr 8, 2015

Abstract

Background: Accident is a multifactorial event and can be studied in terms of agent, host, and environment. The WHO has defined road traffic accident (RTA) as when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction.

Objective: To study demographic profile and injury pattern among RTA victims.

Materials and Methods: This cross sectional study was conducted at UP Rural Institute of Medical Sciences & Research (UPRIMS & R) hospital, Saifai, Etawah, Uttar Pradesh from 1st January 2014 to 30th June 2014. The study group consisted of all the RTA victims reporting to Emergency Department of UPRIMS & R Hospital in the study period. The data were summarized using percentages. The chi-square test was applied to see if there was any association between the different variables associated with the accidents.

Result: There is a high percentage of RTA among males of younger age group those were using motorized two wheelers. Fracture was the most common type of injury and lower limbs were the most common site involved.

Conclusion: There is a high percentage of RTA among males of younger age group those were using motorized two wheelers. Fracture was the most common type of injury and lower limbs were the most common site involved.

KEY WORDS: Road traffic accident, injury pattern, road traffic accident cases

Introduction

Accidents are not often due to ignorance, but are due to over confidence, thoughtlessness and carelessness. Accident is a multifactorial event and can be studied in terms of agent, host and environment. Human, environment and vehicle factors play important role before, during and after an accident. 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 on moving vehicle is involved”.[1,2] In other words, the WHO has defined RTA as when a vehicle collides with another vehicle, pedestrian, animal, road debris, or other stationary obstruction, such as a tree or utility pole. Any injury occurring as a result of RTA referred to be as road traffic injury.[3] RTA is one of the leading causes of deaths worldwide and majority of deaths occurs in the developing countries. It is estimated that deaths resulting from RTA are almost 1.2 million worldwide while injuries from such accidents are estimated at 50 million.[4] It has been estimated, unless immediate action is taken, road deaths will be the fifth cause death by 2030, resulting in an estimated 2.4 million fatalities per year.[5,6] Road traffic injuries is the second leading cause of mortality in the 15–29 year age group.[3] India already accounts for about 9.5% of the total 1.2 million fatal accidents in the world.[7]

Access this article online	
Website: http://www.ijmsph.com	Quick Response Code: 
DOI: 10.5455/ijmsph.2015.23032015276	

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In India, during the year 2011, there were around 4.98 lakh RTA killed 1.42 lakh people and injured more than 5 lakh persons, many of whom are disabled for rest of their lives.^[8,9] India with a population of 1.2 billion is witnessing a major shift in its health problems due to epidemiologic and socio-demographic transition. With marginal decline in communicable and infectious diseases, non-communicable diseases and injuries have become the leading causes of deaths, disabilities, and hospitalization in the country. While vaccine preventable diseases are major problems in the children, non-communicable diseases are a problem of middle-aged and elderly persons. In the young population of 15–44 years, injuries have becoming leading killer diseases.^[10]

Since there are very less studies on road traffic injuries, so this study was conducted to find out demographic profile and injury pattern of RTA victims and epidemiological factors of RTA. So this study was conducted with the objective to study demographic profile and injury pattern among RTA victims.

Materials and Methods

This cross-sectional study was conducted at UP Rural Institute of Medical Sciences & research (UPRIMS & R) hospital, Saifai, Etawah (Uttar Pradesh) from 1st January 2014 to 30th June 2014. The study group consisted of all the RTA victims reporting to Emergency Department of UPRIMS & R Hospital in the study period.

For the purpose of the study RTA was defined as accident, which took place on the road between two or more objects, one of which must be any kind of a moving vehicle. Following accidents victims were excluded from the study:

1. Injury involving a stationary vehicle (e.g. persons getting injured while loading or washing a vehicle).
2. Road injuries in which there was no involvement of vehicle, such as a person falling and slipping on the road and sustaining injury.
3. Deaths due to RTA.

The victims of the accidents were interviewed to obtain the information about the circumstances leading to accident. A pretested proforma specially designed for this purpose was used for interviewing the accident victims in the emergency department of UPRIMS & R Hospital, Saifai, Etawah. The relatives or attendants were interviewed, where the condition of the victims did not warrant the interview. Besides, informed consent was taken from each participants and confidentiality of the information collected was ensured. The information collected consisted of personal identification data, time, date, day, and type of vehicles involved in RTA; protective gear worn; and category of road users. The medicolegal records and case sheets were referred for collecting additional information and where necessary for cross-checking. The data were summarized using percentages. The χ^2 test was applied to see if there was any association between the different variables associated with the accidents.

Table 1: Age and sex distribution of road traffic accident cases

Age group (years)	Male No.(%)	Female No.(%)	Total No.(%)
≤15	30 (8.04)	2 (1.92)	32 (6.70)
16–30	167 (44.77)	44 (42.31)	211 (44.23)
31–45	119 (31.90)	33 (31.73)	152 (31.86)
46–60	40 (10.72)	16 (15.38)	56 (11.74)
≥60	17 (4.57)	9 (8.66)	26 (5.47)
Total	373 (100)	104 (100)	477 (100)

Table 2: Road user category of road traffic accident cases

Road user category	No.	Percentage
Pedestrian	53	11.11
Pedal Cyclist	19	3.98
Motorized two wheeler driver	212	44.44
Motorized two wheeler pillion	76	15.93
Light motor vehicle occupant	24	5.04
Heavy motor vehicle occupant	13	2.73
Three wheelers occupants	47	9.85
Tractor	33	6.92
Total	477	100

Table 3: Distribution of day of accident of road traffic accident cases

Day of accident	No.	Percentage	P-value
Monday	60	12.58	0.003
Tuesday	96	20.13	
Wednesday	95	19.92	
Thursday	64	13.42	
Friday	72	15.09	
Saturday	43	9.01	
Sunday	47	9.85	
Total	477	100	

Result

In this study a total of 477 cases were included who admitted in the emergency department of UPRIMS & R Hospital, Saifai, Etawah during study period.

Table 1 shows that there were 373 (78.20%) male victims and 104 (21.80%) female RTA victims. The highest numbers of victims were in the age group of 16–30 years, that is, 44.23% followed by 31–45 years (31.86%). There were 32 victims below or equal to the age of 15 years.

A high proportion of the patients of road traffic injuries were either motorized two wheeler driver (44.44%) or motorized two wheeler pillion (15.93%). Pedestrians were 11.11% and pedal cyclists were 3.98% (Table 2).

Most of the accidents occurred on Tuesdays (20.13%) and Wednesdays (19.92%) while less numbers of accidents were reported on Saturdays (9.01%) and Sundays (9.85%). The difference in the number of accidents on different days of the week was significant (Table 3).

Table 4: Distribution of road traffic accident cases according to type of injury

Type of injury	No.	Percentage
Cut wound/Laceration	255	53.46
Blunt injury	51	10.69
Fracture	393	82.39
Dislocation	92	19.29
Internal hemorrhage	155	32.49
Crush injury	17	3.56

Table 5: Distribution of road traffic accident cases according to site of injury

Site of injury	No.	Percentage
Head	215	45.07
Neck	4	0.84
Chest	51	10.69
Abdomen	11	2.31
Pelvis	7	1.47
Upper limbs	152	31.86
Lower limbs	349	73.16
Face	112	23.48
Back	77	16.14

There was maximum numbers of fracture cases (82.39%) followed by cut wound/laceration (53.46%) and internal hemorrhage (32.49%) among RTA cases. Minimum cases were of crush injury, that is, 3.56% (Table 4).

Lower limbs injuries were the most common site (73.16%) followed by head (45.07%) and upper limbs (31.86%). There were very few cases of neck injury, that is, 0.84% (Table 5).

Discussion

In this study, the highest numbers of RTA cases were found between the age group of 16–30 years (44.23%). The similar findings were also reported from Delhi, Lucknow, and Puducherry.^[11,9,2,12] This shows that the people of the most active and productive age group are involved in RTAs, which add a serious economic loss to the community. This study also showed that there are less accidents in the in the age group of 15 years and less and 60 years and above. The reason may be that children are taken care of by elders and less use of vehicles in the adolescent group. Lower cases of RTAs in those aged 60 years and above could be due to the generally less mobility of the people.

Males (78.20%) outnumbered females (21.80%) giving a male:female ratio 3.59:1. However, in other studies male and female ratio was high.^[2,9] The high preponderance of males can be attributed to high mobility of males and their high exposure to traffic. However, the difference in proportion of males and females was not much in developed countries.

More than 80% patients were from the socioeconomic class 3 and 4 and this was similar to other studies.^[9,14] This

could be due to higher proportion of the middle class relying on motorized two wheelers that are more vulnerable to accidents.

In this study, motorized two wheeler driver constituted 44.44% of the RTAs cases followed by motorized two wheeler pillion (15.93%), pedestrian (11.11%). Similar observations was reported in other studies.^[9,13,14]

Majority of the accidents occurred on Tuesdays (20.13%) and Wednesdays (19.92%) while less numbers of accidents were reported on Saturdays (9.01%) and Sundays (9.85%). These finding were similar to study conducted by Chauhan *et al.*^[9] but different from other studies.^[2,13]

Fracture was the most common type of injury (82.39%) followed by cut wound/laceration (53.46%) and internal hemorrhage (32.49%) among RTA cases. Similar trend has been reported by other researchers also.^[9,13,15]

Lower limbs were the most common site (73.16%) of injury followed by head (45.07%) and upper limbs (31.86%). These findings were similar to other studies also.^[9,13,15]

With the help of findings of this study, we can recommend various measures to minimize the RTAs. We can also arrange manpower and materials to tackle these emergencies and can save lives.

This study has been conducted in a single hospital for a duration of 6 months. Further multicentric studies may be done for longer duration.

Conclusion

In this study, there is a high percentage of RTA among males of younger age group those were using motorized two wheelers. Fracture was the most common type of injury and lower limbs were the most common site involved.

Recommendations

There is a need for road safety education. Measures should be taken to minimize the RTAs. This requires intensive IEC and BCC. Road safety education should be incorporated in curriculum of primary, middle, and higher level of school students.

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How to cite this article: Jaiswal K, Kumar S, Sant SK, Singh AK, Kumar A, Singh A. Injury pattern of road traffic accident cases in a rural hospital of central Uttar Pradesh. *Int J Med Sci Public Health* 2015;4:1347-1350

Source of Support: Nil, **Conflict of Interest:** None declared.