



PROFILE OF ROAD TRAFFIC ACCIDENT CASES AND PATTERN OF INJURIES: A TERTIARY CARE HOSPITAL BASED STUDY

Community Medicine

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ABSTRACT

Background: Road Traffic Accident (RTA) has emerged as a global public health problem. In India, The magnitude of the problem is alarming. In Assam, The RTA prevalence has been increased significantly over the last couple of years.

Objectives: 1) To study the profile of RTA cases attending Gauhati Medical College & Hospital (GMCH), 2) To study the Pattern of injuries in RTA cases.

Methodology: A Tertiary care hospital based cross-sectional study was conducted from 1st June to 30th Nov 2017 among 203 RTA victims attending GMCH, Guwahati. A predesigned and pretested schedule was used to collect data. Reviewing of medical record was also done to confirm the pattern of injuries. Data were analyzed using rates, ratios and proportions etc.

Result: Majority 141(69.46%) of the accidents occurred among the age group of 21 to 30 yrs. Male predominance (83.25%) was observed. Majority 105(51.72%) of the victims were motorized two wheeler user and majority 74(70.48%) of them didn't wear helmet. Majority 149(73.39%) of the victims had soft tissue injuries followed by bone injury 83(40.88%). Among drivers 22.1 % were under the influence of alcohol.

Conclusion: The study revealed that RTAs are more common in younger age groups. Preventive practices were found to be low among the victims. Strict enforcement of road safety regulations could prevent RTAs.

KEYWORDS

socio-demographic profile, Road Traffic Accidents, injury pattern, motorized vehicle.

Introduction:

Road Traffic Accident (RTA) has emerged as a global public health problem. In India, The magnitude of the problem is alarming. There is one death every four minutes due to road traffic accidents in India^[1]. In Assam the RTA prevalence has been increased significantly over the last couple of years. According to World Health Organization(WHO), RTA is defined as, "An event occurring on a street, road or highway, in which at least one motor vehicle in motion is involved by collision or losing control and which cause physical injury or damage to property"^[2]. Considering the increased prevalence of RTAs, it is most crucial to understand the epidemiology and circumstances related to RTAs.

A triad of human, agent and environmental factors plays very important roles before, during and after an accident. Therefore, RTA has to be studied in terms of an epidemiological model and analyzed in relation to time, place and person's distribution. The main cause of injury may be attributed to person's ever increasing desire to moves faster. It is expected that by the year 2020 road traffic accidents will be on the third rank in the global burden of diseases^[3].

According to National Crime Record Bureau ,In India (2010), the number of vehicular accident was 4,30,600 resulting deaths and 4,70,600 injuries, which was accounting for 37.2% of the all accidental death^[4].

Road traffic accidents are the major cause of disability and death in the world which ratio is different in numbers in developed and developing countries and also responsible for loss of productivity^[5].

Injuries related to road traffic accidents were admitted in medical college & hospitals taking out significant number of lives and resources. It is very important to know the profiles of road traffic accident victims, where accidents occur and the type of injuries.

This information will indicate the groups of people mostly involve in RTAs, and the problem leads the accidents and preventive measures which controlled the number of accidents. Considering all these facts, the present study has been conducted in GMCH, a tertiary care hospital. The objectives of the study include,

1. To know the profile of RTA victims,
2. To study the pattern of injuries.

METHODOLOGY:

A descriptive cross-sectional study was conducted in Gauhati Medical College & Hospital, which is a 2500 bed tertiary care hospital at Guwahati, Assam. The study covered all the cases admitted in emergency departments due to road traffic accidents during the period of 1st June 2017 to 30th Nov 2017. There were reported 2,031 road traffic accident cases admitted at GMCH, Guwahati. Out of these, 203 cases selected for this study after fulfilled the inclusion criteria which were 10% of the total registered admitted cases in the study period. Data collection was done by semi-structured, pre-designed and pre-tested schedule. Data was directly collected from the victims, relatives, attendants or police personnel. Pattern of injuries was reviewing in medical and registration department (MRD) of GMCH. Data included information related to socio-demographic profile, certain factors leading to RTAs and the pattern of injuries.

The cases included in the study were, The victims admitted in the emergency department of GMCH due to motorized RTAs. The cases excluding from this study were, a) Cases not willing to take part in this study, b) The cases requiring ICU, c) The victims succumb to death immediately after admission, d) The cases leave against medical advised (LAMA), e) All the brought cases and f) The cases with incomplete details.

The patient under the influence of alcohol was identified based on the clinical impression of the attending doctor and by the police where possibility of alcohol breaths analyzer available. The injury patterns were confirmed by case sheets, investigation papers and medico-legal certificates. The data analysis was done by SPSS-16 and results were interpreted in terms of percentage, rate, ratio and proportion.

RESULTS:

In this study, from the 203 cases, majority of the cases 141(69.46%) were in the age group of 21-30 years followed by 25(12.32%) in the age group of 31-40 years (Table-1). A little number of cases found from the age group of less than 10 years and more than 60 years of age (Table-1). Out of this 203 cases, 169(83.25%) were males and 34(16.75%) were females, which represent male predominance. In this study, majority 135(66.50%) of the cases belongs to Hindu religion followed by Islam (Table-1) and majority 114(56.16%) of the victims from urban area (Table-1).

In this study, majority 69(33.99%) of the cases studied up to Higher

Secondary followed by graduates & above 60(29.56%) and the lowest number of victims belongs to illiterate (Tab-1).

The present study revealed that most of the RTA victims 118(58.13%) were driver followed by occupants 58(28.53%) and pedestrians (13.30%) as shown in the Table-2. Out of the 118 drivers, 105(51.72%) were the two wheeler drivers. Moreover, among the two wheeler drivers, a large majority 74 (70.48%) didn't wear helmet as shown in the Table-2. Also found that, among the drivers 26 (22.03%) had consumed alcohol during or within 6 hours before the occurrence of accidents.

As shown in Table-3 and Figure-1, the commonest pattern of injury was soft tissue injury 149 (73.89%) followed by bone injury 83(40.88%) in the different body regions of the victims. The head injury victim was 17.24% which is also a remarkable pattern of injury.

Tab-1: Socio-demographic profile of the Subjects (N=203).

Age	Frequency	Percentage
<10 yrs	2	0.98
11-20 yrs	15	7.38
21-30 yrs	141	69.46
31-40 yrs	25	12.32
41-50 yrs	11	5.42
51-60 yrs	6	2.96
>60 yrs	3	1.48
Total	203	100
Gender	Number	Percentage
Male	169	83.25
Female	34	16.75
Total	203	100
Religion	Frequency	Percentage
Hinduism	135	66.50
Islam	49	24.14
Sikh	8	3.94
Christian	11	5.42
Total	203	100
Residence	Number	Percentage
Rural	89	43.84
Urban	114	56.16
Total	203	100
Education Status	Frequency	Percentage
Illiterate	14	6.90
Up to class-V	32	15.77
Up to-class-X	28	13.79
H.S.	69	33.99
Graduate & Above	60	29.55
Total	203	100

Tab-2: Details related to RTA victims (Subjects, Types of vehicle, Alcohol status of driver and 2-Wheeler driver with helmet)

Distribution of victims	number	Percent
Driver	118	58.13
Occupants	58	28.53
Pedestrian	27	13.30
Grand Total	203	100%
Types of vehicle	Number	Percent
Two wheeler	105	88.98
Three wheeler	03	02.55
Four wheeler	10	08.47
Grand Total	118	100%
Alcohol status of driver	Number	Percent
Positive	26	22.03
Negative	92	77.97
Grand Total	118	100%
Driver with helmet	Number	Percent
Yes	31	29.52
No	74	70.48
Grand Total	105	100%

Tab-3: Distribution of RTA cases according to pattern of injury

Pattern of injury	Numbers	Percentage
Head injury	35	17.24
Bone injury	83*	40.88
Soft Tissue Injury	149*	73.89
Others	31*	15.27

**** Multiple Response of the injury.**

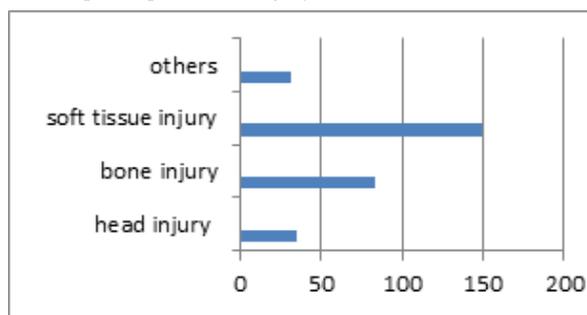


Figure-1: Distribution of RTA cases according to pattern of injury.

DISCUSSION: The present study was conducted in a tertiary care hospital at Guwahati, which is a premier institute in the North East India. The present finding of higher occurrence of RTA among the age group 21-30 year was 69.46% and majority(83.25%) of them were males. Male female ratio was approximately 4:1, which indicating males were more prone to the accidents. The findings were similar with the study done by **Ruma Dutta et.al**^[9] and **Athavale AV et.al**^[10].

The males were at higher risk for RTAs who attributed to their greater exposure to traffics and aggressive driving habits, impatience, time bound journey and mixed drinking with driving. Similar study was done by **Ganveer GB et.al**^[11] and **Frank TM et.al**^[12].

The study also revealed that majority of the RTA victims 135(66.50%) belongs to Hindu followed by Islam 49(24.14%). This result may be due to maximum Hindu population in this region. Majority (56.16%) of the victims were from urban area could be due to more prone to traffic exposure. This result is similar with the study done by **Mohan D et.al**^[13] as the population increases in urban area coming from rural area.

The study also shown that majority 69(33.99%) of the victims were studied up to higher secondary followed by graduates and above. In case of illiterates, perhaps, most of them from poor family either having no motorized vehicle or slow rider on fear of death and penalty. Similar study was done by **Mishra B et.al**^[6].

Out of 203 cases, most of the victims were driver 118(58.13%) and where considerably, a good percentage (51.72%) of them 2-wheeler driver followed by occupants. In this study, most of the 2-wheeler bike riders among the age group of 18-30 yrs including occupants. Pedestrians were RTA victims either of crossing roads or walking roadsides. This could be due to absence of zebra-crossing and lack of traffic alertness for road crossing. These results supported by **Aggarwal A et.al**^[1].

Alcohol was a major determinate for RTA and the present finding of 22.03% of victims with alcohol consumption was in confirmatory with the study done by **Singh A et.al**^[14]. This is lack of strict legislation and punishment on drink & drive.

This study also shown that majority of the victims had soft tissue injury 149(73.89%) followed by bone injury 84(40.88%) and head injury 35(17.24%) which are almost similar with the study done by **Ruma Dutta et.al**^[9].

LIMITATION: The sample size was small as the moribund & deceased victims were excluded. So the results generalizability may be low. Other limitations were extent of internal injury to the vital organs not analyzed in serious victims which were either admitted in ICU or referred to other higher centre.

CONCLUSION: The study revealed that road traffic accidents are more common in younger age groups. Preventive practices were found to be low among the victims. Strict enforcement of road safety regulations could prevent RTAs. The motorized driver must pay attention to wearing helmets or using seat belts. Educating the younger people through mass-media and initiating road safety training campaign about the traffic rules & regulations. Future accident prevention research is essential to find out the epidemiological factors and control measures of road traffic accidents.

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