Profile of Road Traffic Accident Cases attending
North Bengal Medical College and Hospital, India

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**Abstract:**

**Introduction:** Road traffic accidents are a leading cause of mortality and morbidity globally. A road traffic accident 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. The important factors are human errors, driver fatigue, poor traffic sense, mechanical fault of vehicle, speeding and overtaking violation of traffic rules, poor road conditions, traffic congestion, road encroachment etc.

**Objective:** The present study was undertaken to study epidemiological profile of road traffic accidents. The pattern and factors were also explored in the study.

**Materials and methods:** Setting based cross-sectional study done in North Bengal Medical College and Hospital among the victims attending the emergency wards in August 2016. A self-administered, well designed pretested semi structured questionnaire with anonymity of the respondent was used for data collection with the help of interview and record review and observation. Severely injured patients were excluded from the study and a total of 80 patients were studied.

**Results:** Two-wheelers were the commonest vehicle involved in vehicular accidents. Most of the patients were aged between 20 and 40 years. Majority were males, unskilled workers and from rural areas. Pedestrians were affected more. Most cases occurred between 6 pm to 12 am. Among severe injuries, the commonest were extremities. Poor road condition was one of the major factors found among the accident events.

**Conclusion:** There are multiple factors associated with road traffic accidents. Lack of road safety measures and implementation of road safety laws are a great lack in the country. It is the need of the hour to address this issue and formulate comprehensive, scientific and realistic rules and regulations as well as evaluate its enforcement.

**Key words:** Traffic accidents, background characteristics, motorbike, hospital.

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**Introduction**

A road traffic accident 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.1

Amongst all traffic accidents, road traffic accidents claim largest toll of human life and tend to be the most serious problem world over. Worldwide, the number of people killed in road traffic accidents (RTA) each year is estimated at almost 1.2 million, but the number of injured could be as high as 50 million.2

The important factors are human errors, driver fatigue, poor traffic sense, mechanical fault of vehicle, speeding and overtaking violation of traffic rules, poor road conditions, traffic congestion, road encroachment etc.

Worldwide the total number of RTA death has plateaued at 1.25 million per year with the highest road traffic fatality rate in low income countries. RTA is projected to become second leading cause of deaths in the world by 2020.3 Currently motor vehicle accidents ranks 9th in order of disease burden and are projected to be ranked third in the year 2020. West Bengal records one of the maximum numbers of road mishaps with 5,000 RTA deaths annually in Kolkata. In 2014, the number of persons killed per 100 accidents is at 51.4% in this state which is the 4th highest in the country.4

In spite of these data there are very few studies on the epidemiology and rate of presenting injuries to the Emergency Department from RTA cases.5 Studies estimating the epidemiology and morbidity would help greatly in planning preventive strategies and preparing the Emergency...
Department to handle these injuries effectively and rapidly. Darjeeling district being one of the hilly region, there is high risk of RTA but few such studies have been done till now here. North Bengal Medical College and Hospital, being one of the tertiary level hospital of West Bengal, data generated from this source could be used for policy making and administrative purpose.

Objectives
To find out the epidemiological profile of Road Traffic Accident cases attending North Bengal Medical College & Hospital, Darjeeling.

Materials and Methods
It was descriptive, hospital based, cross-sectional study done among of Road Traffic Accident cases attending emergency department, surgery and orthopaedics ward of North Bengal Medical College & Hospital, Darjeeling for a period of one month. By using pretested, pre–designed semi-structured schedule, the patients were interviewed to obtain the information regarding their background profile and injury. The medico legal records and case sheets were referred for collecting additional information and where necessary for cross-checking.

Before conducting the study institutional ethical clearance and informed consent of the victims were obtained. Faculties & nursing staff of different wards were priory sensitized about the purpose and benefits of the study and their cooperation was sought. In the emergency department, orthopedics ward and surgery ward of NBMCH. Severely injured patients who have no accompanying attendants were excluded.

Case definition of Road Traffic Accident (RTA): A road traffic accident 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.

Results
After analysis, the results are subdivided in two groups:
I. Background characteristics of RTA patients.
II. Information regarding accident.

Finally 80 patients were analyzed and presented in tables and chart.

Table 1 describes the characteristics of the RTA victims. 66.2% of the study population are young adults within age group of 20-40 years. 90% of the study population are male subjects and 37.5% are unskilled workers. 75% were from rural areas and 30% of them had middle school education.

Table 2 reveals the information regarding the accident. Motorbikes are found to be responsible for 52.5% of accidents under study. 33.7% & 36.3% of the study population were pedestrians and drivers respectively and the rest were occupants. 35% of the accidents under study took place within 20 km of NBMC&H. 77.5% of the accidents took place on metalled road. The principal factor for accident was poor road condition.
Table 3 describes the pattern and health seeking behavior of injury. 61.2% of the study population suffered from injured extremities while 30% suffered from head & neck injury and 37.5% of the study population lost their consciousness after accident. 26.2% had attended NBMC after the injury and 40% from other government hospitals. Fig 1 shows that a major portion of 55% of the accidents took place between 6pm to 12 am. Accidents were less during day time.

Table 3: Pattern of injury and health care seeking behaviour

<table>
<thead>
<tr>
<th>Pattern of injury</th>
<th>Number</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head and neck</td>
<td>24</td>
<td>30.0</td>
</tr>
<tr>
<td>Thorax &amp; abdomen</td>
<td>07</td>
<td>08.8</td>
</tr>
<tr>
<td>Extremities</td>
<td>49</td>
<td>61.2</td>
</tr>
<tr>
<td>Types</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abrasion</td>
<td>56</td>
<td>70.0</td>
</tr>
<tr>
<td>Bruise</td>
<td>45</td>
<td>56.2</td>
</tr>
<tr>
<td>Laceration</td>
<td>51</td>
<td>63.7</td>
</tr>
<tr>
<td>Fracture</td>
<td>49</td>
<td>61.2</td>
</tr>
<tr>
<td>Head injury</td>
<td>16</td>
<td>20.0</td>
</tr>
<tr>
<td>Visceral injury</td>
<td>01</td>
<td>0.01</td>
</tr>
<tr>
<td>State of consciousness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unconscious</td>
<td>30</td>
<td>37.5</td>
</tr>
<tr>
<td>Conscious</td>
<td>50</td>
<td>62.5</td>
</tr>
<tr>
<td>Type of health care</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government hospitals</td>
<td>32</td>
<td>40.0</td>
</tr>
<tr>
<td>NBMC</td>
<td>21</td>
<td>26.2</td>
</tr>
<tr>
<td>Others</td>
<td>19</td>
<td>23.8</td>
</tr>
<tr>
<td>Total</td>
<td>80</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Discussion:

Two-wheelers were the commonest vehicles involved in vehicular accidents. Most of the patients were aged between 20 and 40 years. Majority had a driving experience of less than 5 years. This may be attributed to the fact that this is the age group which ventures out most due to studies or employment and also has a tendency to over speed. Similar findings were seen in studies conducted in different parts of India.6,7 Majority of the victims were males which were also corroborated with findings of Aggarwal study8 who commented that the females of our society mostly remain inside busy in household chores.

Most cases occurred between 6 pm and 12 am. Among severe injuries, the commonest were extremities. Similar results were found in studies conducted in Delhi by Mehta and in Nepal by Jha.9,10 But a study in Chandigarh8 reveals the maximum number of accidents took place on Saturdays and Sundays in between 3 to 8 pm where the traffic rush was more.

Motorbike rides are prone to accidents as they are relatively unstable and thirdly there is a tendency to ride them at higher speeds. This all amounts to an impact of greater mechanical energy during the accident which leads to injuries that most of the times are severe. Headgear had a protective effect on head injuries. There was a significant association between the speed of travel and the severity of injury. This is in concurrence with a study carried out on students of college in Taiwan where it was concluded that an increased riding speed was significantly associated with a greater level of injury severity.11 In a study12 conducted in Guwahati by Saikia A, 51.72% of the victims were motorized two wheeler users and 70.48% of them didn’t wear helmet. In a study done by Aggarwal A in Chandigarh, 68% were traveling with two wheeler had suffered from road traffic accident.8

In the present study, pedestrians were affected more. Most of the victims were drivers (48.5%) followed by passengers (31.7%) and pedestrian (19.8%) in a study conducted by Kahn P S in Tirupati,13 while it was 78.2% among pedestrians in a study at NIMHANS by Gururaj.14 Lower limb fracture was common in the present study which was also found in a study done by Pathak et al.15 This finding is in concordance with a study carried out in western Maharashtra.16 Abrasions, laceration and fracture were common findings in the present study. Soft tissue injuries were the commonest type of injuries suffered (48.6%). Among the more severe injuries, lower limb fractures were the most common (19.8%) found in study done in Pune.15

Persistence of regulations along with preventive strategies regarding safe driving, the safety of roads, vehicles, and road users may be helpful to decrease this modern epidemic of Road Traffic Accidents.

Limitations

The sample size is small as 24 hours span could not be covered by the students, so a proportion of RTA cases were missed. 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 present study reveals that road traffic accidents are more common in males, younger age group and among two wheeler occupants. Preventive practices were found to be low among the victims. Educating the younger people through mass-media and initiating road safety training campaign about the traffic rules & regulations can improve the situation. Implementation of interventions like helmet use, preventing drinking and driving speed control, safety belts, trauma care and road engineering can surely reduce the road traffic accidents.

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