

Original article

Road traffic accidents, the leading cause of death: A retrospective study

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Abstract

Road traffic accidents (RTAs) has spiked over the past few years and has become a major public health concern in Bangladesh. Globally, RTA causes 1.35 million deaths annually. The consequences of road traffic accident not only affect the victim's physical, psychological and financial hardship, but also has fatal impact on the functioning of the whole family. The objective of this study was to evaluate the present situation of RTA in Dhaka city, to find out the pattern of injuries, to identify the causes, frequency, socio- demographic characteristics of the victims and to identify the measures to minimize the incidence of RTAs. This retrospective study was conducted in the department of Forensic Medicine & Toxicology of Dhaka Medical College during January 2019 to December 2019. A total of 154 medico-legal cases of road traffic accidents were brought to the mortuary of Dhaka Medical College from 23 police stations and 1 railway Thana. Data was collected from inquest report, Challan and postmortem reports from the department of Forensic Medicine and Toxicology, Dhaka Medical College. This study shows that a total of 154 post mortems of RTA cases were conducted at DMC morgue during January 2019 to December 2019. Greater number of the accidents occurred during June 28 (18.18%) and August 25 (16.23%). Among the victims, 114 (74.03%) were male and 40 (25.97%) were female. Most of fatality was among the age group 22 to 27 years (48, 31.17%) followed by 28 to 33 years age group (32, 20.78%). By religion, Muslims were 130 (84.41%), followed by Hindus (19, 12.34 %), and Christians (05, 3.25 %). Considering the injury patterns, all victims had multiple abrasion and bruise 154 (100%), fracture ribs 28 (18.18%), fracture hipbones 26(16.88 %), fracture skull bones 17 (11.04%), head injury 24 (15.58%) and intracranial haemorrhages 24 (15.58%). Road traffic accidents can be minimized by creating public awareness among all road users about traffic signals and traffic safety rules as far as private users of vehicles are concerned.

Key words: Road traffic accident, major public health concern, consequences of road traffic accident

Introduction

Bangladesh is a densely populated country with 165 million people. Perhaps one of the most important features of modernization is the need for people to travel more than they used to in the past. This need has resulted in an increase in the type and number of vehicles with an increase in the number deaths and disabilities following traffic accidents. It is estimated that at least 21 people die every day in the capital city.¹ The actual rate of fatality is likely to be even higher. According to a road safety campaign by 'Nirapadsarak chai' data, at least 4,439 people were killed and 7,425 people injured in traffic accidents across the country in 2018. This number increased by 51.53 % and death increased by 17.75 % in 2019 compared to 2018. In 2019, the total number of accidents in the country was 4,702 out of which, there were 5,227 deaths and 6,953 people injured in 4702 road accidents across the country.² The reason behind the increased number of accidents and casualties include

reckless driving, not obeying or following traffic rules, overloading of transport vehicles, poor maintenance of the vehicles, driver fatigue, use of alcohol, lack of awareness among the road users including drivers and pedestrians, poor weather conditions and lack of use of safety measures like seat belt, helmets etc.³ Road traffic accidents occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris or other stationary barrier, such as a tree or utility pole. The victims injured by accidents on the road are divided into three broad groups: pedestrians, cyclists (pedal or motor) and the drivers and passengers of vehicles. Of these three broad groups, it is the pedestrians that are most often injured.⁴ The greater the speed of the vehicle at impact, the more severe will be the injuries sustained by the pedestrian.⁵ The usual characteristic injuries in pedestrians are abrasion, bruise, laceration, bumper fracture, crushing of the head, avulsed lacerations of the limbs, blunt trauma to the chest or abdomen, crush syndrome, fracture of the

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ribs, hip bone, rupture of the viscera or vital structures.⁶ On the other hand, the characteristic injury sustained by the front seat passengers including drivers are abrasions, lacerations, fracture of legs around knee or around the upper shin level, posterior dislocation of hip joint, steering wheel may cause severe internal injuries, bruising of skin, fracture of ribs and/or sternum, cardiac contusions, haemothorax, pneumothorax or both, rupture of liver, laceration of aorta, avulsion of heart, sparrow-foot injuries to face, head injury, whiplash injury to the spinal cord commonly in the cervical region.⁷

Materials and Method

The study was conducted in the department of Forensic medicine & Toxicology of Dhaka Medical College, during January 2019 to December 2019. A total of 154 cases of road traffic accidents were examined and recorded. Data was collected from inquest report, challan and postmortem reports. Collected data were then analyzed and were presented in tables.

Result

Table I: Month wise reported cases of RTA in 2019 (n=154)

Months	Frequency	Percentage
January	16	10.39%
February	12	7.79%
March	09	5.84%
April	08	5.19%
May	12	7.79%
June	28	18.18%
July	09	5.84%
August	25	16.23%
September	06	3.89%
October	05	3.24%
November	09	5.84%
December	15	9.74%
Total	154	100 %

Table- I shows that 28 (18.18%) of RTA cases were reported in the month of June, 25 (16.23%) cases in August and 16(10.39%) cases in January 2019.

Table II: Distribution according to sex of the victims (n= 154)

Sex	Frequency	Percentage
Male	114	74.03 %
Female	40	25.97 %
Total	154	100 %

Table-II shows that 114 (74.03%) victims of RTA were male & 40 (25.97%) victims were female.

Table III: Age group of victims of RTA (n=154)

Age group (in years)	Frequency	Percentage
10-15	08	5.20 %
16-21	10	6.49 %
22-27	48	31.17 %
28-33	32	20.78 %
34-39	10	6.49 %
40-45	18	11.69 %
46-51	12	7.79 %
52-57	07	4.55 %
58-63	05	3.25 %
64 and above	04	2.60 %
Total	154	100 %

Table- III shows that 48 (31.17%) victims of RTA belong to age group 22 to 27 years, 32(20.78%) victims belongs to age group 28 to 33 years & 18 (11.69%) belong to 40 to 45years age groups.

Table IV Distribution of RTA victims according to religious belief (n=154)

Religion	Frequency	Percentage
Muslim	130	84.41 %
Hindu	19	12.34 %
Christian	05	3.25 %
Total	154	100 %

Table IV shows that 130 (84.41%) victims of road traffic accidents were Muslims, 19 (12.34 %) were Hindus & remaining 05 (3.25 %) were Christians.

Table V Distribution of injury patterns of the victims of RTA:

Pattern of injury	Frequency	Percentage
Abrasion	154	100%
Bruise	154	100%
Laceration	12	7.79 %
Fracture of hip bone	26	16.88%
Fracture of ribs	28	18.18%
Fracture of sternum	06	3.89 %
Head injury	24	15.58 %
Intracranial haemorrhage	24	15.58 %
Fracture of skull bones	17	11.04%
Fracture of upper limbs	04	2.59 %
Fracture of lower limbs	13	8.44 %
Total	154	100%

Table V shows various injuries sustained by the victims with highest being the fractures of ribs 28 (18.18%), fracture of hipbones 26(16.88 %), head injury 24(15.58 %), intracranial haemorrhage 24 (15.58%), fracture of skull bones 17 (11.04%).

Discussion

Road accidents are one of the leading cause of death in Bangladesh. According to a World Health Organization report, globally RTA causes 1.3 million deaths per year.⁸ A similar statistic in Sri Lanka stated that globally, about 1.25 million people died each year as a result of traffic accidents⁹. In Bangladesh, traffic accidents are major cause of hospital admissions at primary and secondary facilities.¹⁰ RTAs alone costs 1%, 1.5 % and 2% of the gross national product (GNP) of low, middle and high-income countries respectively. For low and middle-income countries, this exceeds the total development aid received. According to the Guardian, the country loses an estimated 1.2 billion pounds due to road traffic accidents per year, equivalent to 2% of GDP and all of the foreign aid that Bangladesh receives annually.¹¹ According to UNICEF, roughly 38,000 children become orphans every year because of road fatalities. Distribution of RTA is generally influenced by socioeconomic factors. RTA are twice as high in low and middle income countries compared to high income countries, with almost 90% of all RTA deaths occurring in low income countries.¹² Within poor countries, poor people- represented by pedestrians, passengers in buses and trucks, and cyclists suffer a higher burden of morbidity and mortality from traffic injuries.¹³ In Bangladesh, 70% of traffic accidents occur in pedestrians and 50% of these fatalities involve buses.¹⁴ In this study, the number of road traffic deaths were highest in June 28(18.18%) followed by August 25 (16.23%). These high death rates occurred during the two Eid holidays. In this study, among the 154 victims, 114(74.03 %) were male and 40 (25.97%) were female. These results are in agreement with the study of Karim M et al(2011)¹⁵ where 47% victims of RTA were male and only 8% were female. This is probably because men in Bangladesh have more exposure and movement on the road due to their work, business, jobs or studies, whereas females are often restricted to their homes and other responsibilities for handling household chores.¹⁶ In this study, victims age range was 10 to 64 years. Majority of victims 48(31.17%) were between age groups of 22 to 27 years. Similar findings are observed by Karim M et al. (2011)¹⁵, where the age range of 20-30 years (38.1%) represented the most likely victims of RTA deaths. In this study, the majority of victims were (84.41 %) Muslims. This study differs with a similar study conducted in Sri Lanka by Silva VD et al. (2018)¹⁷ where majority of the victims were Buddhists. This is consistent with the population majority of both countries. In this study, considering the patterns of injury, all victims had multiple abrasions and bruises 154 (100%). Various fractures were noticed which consist of ribs 28 (18.18%), hipbones 26(16.88 %), skull bones 17 (11.04%), head injury & intracranial haemorrhages 24 (15.58%) were present along other injuries in the body. Similar findings were observed by ASMJ Chowdhury et.al. (2012)¹⁸ where he stated that 56 (100%) victims had multiple abrasions

and bruises, head injury 21(44.68%) and pelvic fractures were present in 3(6.38%) victims of RTA.

Limitation of the study

This study is conducted in the department of Forensic Medicine & Toxicology, Dhaka Medical College during one-year duration. As both the duration and sample size are small, further comprehensive study is needed to find out the overall scenario regarding the issue in Bangladesh.

Conclusion

Road traffic accidents can be minimized by creating public awareness among all road users about traffic signals and traffic safety rules as far as private users of vehicles are concerned. Due emphasis should be given in educating the drivers of the public transport system. The speed of the vehicles should be restricted at accident prone areas, encouraging the public in the use of foot over bridges, maintaining fitness of every vehicles, limiting the additional passengers on the vehicles, mandatory use of seat belts and renewal of license of defective vehicles by Bangladesh Road Transport Authority (BRTA) should be strictly monitored. While the causes of RTAs can vary, the consequences are often the same, resulting in vehicular and property damage to serious injuries. Compensation should be high and punishments, for the faulty drivers should be severe and their proper implementation should be ensured by the Government. This will greatly help in the increasing awareness among drivers and pedestrian, thus help to reduce the incidence of road traffic accidents in future.

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