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Original Article

Abundance of Road Traffic Accidents among Medicolegal Postmortem Cases.

MZ Rahman[1], M Ahmad[2], FN Rahman[3], SMK Islam[4], KGM Rahman[5], MR Haque[6].

Abstract

This retrospective study was conducted at the Dhaka Medical College (DMC) morgue during the period of Jan 2008 to Dec 2008. The objective of this study was to find out the abundance of Road Traffic Accidents (RTA) cases among medicolegal post mortem examinations performed at DMC morgue and in this relation to evaluate the present situation of RTA in our country. It has been observed that RTA cases are the most common cases among various types of medicolegal post mortems. A total of 2714 postmortems were conducted during the study period and out of which 813 (29.95%) cases were of RTA, among the victims 545 (67.03%) were male and 268 (32.96%) were female. Highest incidence (30.38 %) of RTA was observed among the age group 21 to 30 yrs. Most accidents occurred at daytime 282 (34.68%), followed by night 233 (28.66%). Greater number of accidents occurred during September 90 (11.07%), followed by January 85 (10.45%) and December 83 (10.20%). Commonest victims were pedestrians 564 (69.37%). Most accidents took place on highways 650 (79.95%) and buses were the most dangerous vehicle causing highest number of accidents 307 (37.76%), followed by truck 141 (17.34%). Among the cases 100% victims had multiple abrasion and bruise, laceration were present in 654 (80.44%), and intra cranial injury 527 (64.82 %).

Key words: Road Traffic Accidents, Postmortem Examination

Introduction

Road traffic accidents (RTA) cause largest number of injuries and fatalities world wide by killing around 1.2 million people each year and injuring 50 million. These victims occupy 30-70% of orthopedic beds in developing countries hospitals[1]. The financial costs to the communities for RTA are greater than required for the treatment of any other major disease. These are the most common cause of death below the age 50 years in developed countries. With continuation of present trends, road traffic injuries are predicted to be the third leading contributor to the global burden of disease, just behind clinical depression and heart disease by 2020[2]. In developing countries 90 percent of the disability-adjusted life years (DALYs) lost occurs because of road traffic injury[3]. One DALY is roughly equivalent to one healthy year of life lost. In developing and poor countries three-quarters of all poor families who lost a member to road traffic death reported a decrease in their standard of living and 61 percent reported that they had to borrow money to cover expenses following their loss. World Bank estimates that road traffic injuries cost 1 percent to 2 percent of the gross national product (GNP) of developing countries, or twice the total amount of development aid received worldwide by developing countries[4].

Materials and methods

This study was conducted among victims of RTA at DMC morgue during the period of January 2008-December 2008. Various data were collected from the

1. Dr. Md Zubaidur Rahman, MCPS (Foresic Medicine), DFM, Assistant Professor, Dept. of Forensic Medicine, DMC, Dhaka.

2. Lt. Col. Dr. Mushtaq Ahmad, MCPS (Foresic Medicine), DFM, Associate Professor and Head of the Dept. of Forensic Medicine, Armed Forces Medical College, Dhaka.

3. Dr. Farial Naima Rahman, MBBS, DMU, Lecturer, Dept. of Forensic Medicine, Armed Forces Medical College, Dhaka .

4. Dr. S M Khabirul Islam, MCPS (Foresic Medicine), Assistant Professor, Dept. of Forensic Medicine, FMC, Faridpur.

5. Dr. Kazi Golam Mukhlesur Rahman, MCPS (Foresic Medicine), DFM, Assistant Professor, Dept. of Forensic Medicine, DMC, Dhaka.

6. Dr. Md Rezaul Haque, MCPS (Foresic Medicine), DFM, Professor and Head of Dept. of Forensic Medicine, Enam Medical College, Savar, Dhaka.

Address of correspondence:
Lt. Col. Dr. Mushtaq Ahmad, MCPS (Foresic Medicine), DFM, Associate Professor and Head of the Dept. of Forensic Medicine, Armed Forces Medical College, Dhaka. Mob: 088-01711140546.

inquest report submitted by the police, which play very important role in this regards. Information regarding accidents, educational qualification of victim and others were also gathered from the victim's attendants. Specific points regarding injury were noted during post mortem examinations.

Results

A total of 2714 postmortems were conducted during the study period and out of which 813 cases were of RTA (29.95%); Table-I. Among the RTA victims, 545 (67.03 %) were male and 268 (32.96%) were female. Highest incidence of RTA 247 (30.38%) was observed among the age group 21 to 30 yrs, followed by 31- 40 years 201 (24.72 %) and 11- 20 years 172 (21.16%); Table- II. Most accidents occurred at daytime 282 (34.68%), followed by night 233 (28.66%), morning 191 (23.49 %) and evening 107 (13.16%). Greater number of accidents occurred during September 90 (11.07%), followed by January 85 (10.45%) and December 83 (10.20%). Commonest victims were pedestrians 564 (69.37%) followed by passengers 210 (25.83%) and drivers 39 (4.79%); Fig: 1. Maximum number of accidents took place on highways 650 (79.95%) followed by cross junctions 73 (8.98%), T junctions 24 (2.95%); Table-III. Buses were the most dangerous vehicle causing highest number of accidents 307 (37.76%), followed by truck 141 (17.34%), Micro bus 87 (10.70%), mini bus 71 (8.73%); Table- IV. Among the cases 100% victims had multiple abrasion and bruise, laceration were present in 654 (80.44%), and intra cranial injury in 527 (64.82%) cases. Table- V.

Table -I: Types of Postmortem Examinations performed during 2008; (n-2714)

Types of Postmortem Examinations	Number of victims	Percentage
Road Traffic Accidents	813	29.95%
Assault	322	11.86%
Hanging	298	10.98%
Poisoning	216	7.96%
Burn	205	7.55%
GRP cases	190	7.0%
Natural	174	6.41%
Negative	108	3.98%
Fall from height	93	3.43%
Fire arm injury	82	3.02%
Strangulation	70	2.57%
Electrocution	67	2.47%
Still born	35	1.29%
Drowning	25	0.92%
Others	16	0.59%
Total	2714	100%

Table-II: Age distribution of victims; (n-813)

Age in years	Number of victims	percentage
<10	05	0.61%
11 - 20	172	21.16%
21 - 30	247	30.38%
31 - 40	201	24.72%
41 - 50	104	12.79%
51 - 60	74	9.10%
60 - 70	07	0.86%
>70	03	0.37%

Table-III: Places of occurrences; (n-813)

Places of occurrences	Number of victims	percentage
Highway	650	79.95%
Cross junction	73	8.98%
T Junctions	24	2.95%
Railway crossings	11	1.35%
others	55	6.76%

Table-IV: Types of vehicles involved in accidents; (n-813)

Name of vehicles	Number of victims	percentage
Bus	307	37.76%
Truck	141	17.34%
Micro bus	87	10.70%
Mini bus	71	8.73%
Covered van	69	8.49%
Pick up	57	7.01%
Oil tankers	22	2.70%
Private cars	20	2.46%
Others	39	4.79%

Table-V: Pattern of injury in victims; (n-813)

Pattern of injury in victims	Number of victims	percentage
Multiple abrasions	813	100%
Multiple bruise	813	100%
Laceration	654	80.44%
Intracranial injury	527	64.82%
Fracture of skull	511	62.85%
Injury to liver	497	61.13%
Injury to spleen	482	59.28%
Fracture of lower limbs bones	457	56.21%
Fracture of ribs	411	50.55%
Fracture of pelvis	367	45.14%
Injury to Kidney	230	28.29%
Decapitation	06	0.73%

N.B: same victim had multiple types of injury

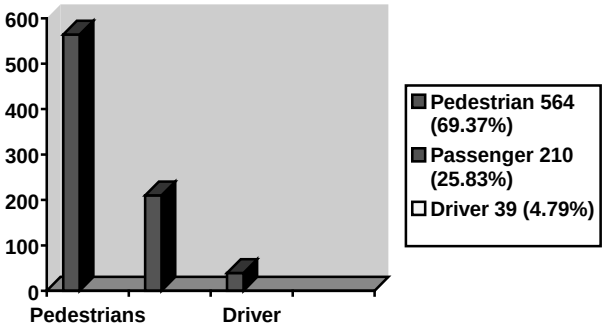

Fig.: 1 Types of victims

Discussions :

Bangladesh is a densely populated country where due to poverty and unemployment people from rural areas rush towards city. Unplanned roads and highways, incompetent traffic system, violation of traffic laws by the drivers and pedestrians, overcrowding, reckless driving etc are the possible explanations for this highest figure of road traffic accidents in city areas. The total number of accidents in Bangladesh during 1987- 2000 ranged from 1,521 in 1987 to 3,419 in 2000, a rise of 125%. Of these, the causalities in 1987 were 1,156, which rose to 3050 in 2000 (an increase of 164%). The number of injured was 1,988 in 1987, which rose to 2,653 in 2000, a rise of 3 %. The available data covering a period of 13 years indicate that the total number of road traffic accident were 38,464 and the number of killed person was 26,363[5]. The estimated national cost of road accident is Tk. 38 billion or US$ 644 million. This is said to be 1.5 percent of GDP and three times annual expenditure of the RHD[6].

In developing countries, exposure to potential road traffic injury has increased largely because of rapid motorization, coupled with rapid population growth, lack of safety features in cars, crowded roads, and lack of police enforcement. For example, in Vietnam, the number of motorcycles grew by 29 percent in 2001, with an associated increase of 37 percent in the number of road traffic deaths[7]. In this study among the victims, male: female ratio was 545 (67.03 %); 268 (32.96 %) This ratio is similar with the previous studies performed in India[8-12].

Men are at higher risk of injuries than women because in our country they are predominantly the earning member of the family. They also have greater exposure to traffic and more risky behavior than females such as running to catch a bus, hanging on the side of bus, impatience, lack of attention and drinking alcohol (in case of drivers) prior to driving etc[13-15]. In this study, highest incidence of RTA 247 (30.38%) was observed among the age group 21 to 30 yrs, followed by 31- 40 years 201 (24.72%) and 11- 20 years 172 (21.16%) This coincides with other study reports, which explains that more than one-half of all road traffic deaths globally occur among people ages 15 to 44 yrs; their most productive earning years. Moreover, the disability burden for this age group accounts for 60 percent of all DALYs lost because of road traffic accidents. Similar age distribution of RTA victims has also been reported in other studies from developing countries[16-20]. Lower proportion of age group below 10 years and above 60 years could be explained by the fact that children are usually taken care of by elders during travel and lesser mobility of geriatric people.

Regarding educational qualification, 67% victims were literate, 28% were illiterate and 5% were unknown. Since all the accidents took place within city area, so the number of literate persons were more among the victims. This coincides with a study in Kenya which showed that 27 percent of commuters with no formal education traveled on foot, 55 percent used buses or minibuses, and only 8 percent used private cars. By contrast, 81 percent of people with secondary education traveled in private cars, 19 percent used buses, and none walked[21]. About the time of incidence, most accidents occurred daytime 282 (34.68%), followed by night 233 (28.66%), morning 191 (23.49%) and evening 107 (13.16%) which corresponds with increase traffic rush on road at daytime and coincides with similar studies in other countries[22]. Sleeping tendency among drivers at night, poor visibility, lack of luminescence marking on road, over taking of vehicles in narrow road, increase number of cargo vehicles on road at night are the possible explanations of accidents. Regarding various months of the year, most accidents 90 (11.07%) occurred at September followed by 85 (10.45%) in January and 83 (10.20%) in December. September is the rainy season in Bangladesh, when the road becomes muddy and slippery causing more accidents. Also rain causes visual obstruction to drivers. Again increase incidences were found during December (10.20%), and January (10.45%) when poor visibility occurs due to heavy fog and mist, hampering driving.

Commonest victims of RTA were pedestrians 564 (69.37%) followed by passengers 210 (25.83%) and drivers 39 (4.79%). In Dhaka city, pedestrians alone comprise almost 75 per cent of road accident fatalities, of them a large number are garments employees. Due to their lack of knowledge regarding traffic rules and also shortage of space in side walks they often walk on the pavements, causing risks for themselves as well as motor vehicles. In Delhi pedestrians and bi-cyclists amount for around 55 per cent of the total traffic deaths, and the pattern is also similar in Colombo. In Bangladesh, at the nationwide level, 49 per cent of road accident victims are pedestrians, 37 per cent are passengers, and 14 per cent are drivers, according to the

Road Traffic Accident Report published by Road Safety Cell of Bangladesh. Studies in Brazil, Mexico, and Uganda have found that pedestrians would rather cross a dangerous road than go out of their way to take a pedestrian bridge, even though such preferences increased their exposure to injury risk[23]. In this study considering maximum number of accidents took place on highways 650 (79.95%) followed by cross junctions 73 (8.98%), T junctions 24 (2.95%). Road conditions are important aetiologic factors in RTA world-wide[24-26].

Regarding vehicles; buses were the most dangerous vehicle causing highest number of accidents 307 (37.76%), followed by truck 141 (17.34%), Micro bus 87 (10.70%), mini bus 71 (8.73%). This could be attributed to the fact, that victims in this study are from city area, where these kinds of vehicle are numerous. One study showed that in developing countries, buses and trucks are involved in a much greater proportion of crashes; yet lack relevant safety standards[27-28].

Considering injury pattern in different parts of body; 100% victims in this study had multiple abrasion and bruises all over the body. Laceration were present in 654 (80.44%) cases, followed by intra cranial injury 527 (64.82%), fracture to skull 511 (62.85%) injury to liver 497 (61.13%). These are the common pattern of injuries found in RTA victims, who die mainly due to hypovolaemic shock following haemorrhage or neurogenic shock[29].

Conclusion :

Road traffic accident is an unforeseen and unfortunate occurrence .Strict enforcement of traffic law, promoting efficient patterns of land use and providing shorter, safer routes for vulnerable pedestrians to reduce their exposure to high ways, use of seat belts, maintaining fitness of vehicles, driving licenses, improving public awareness etc can reduce this economical burden and protecting vulnerable groups of people of our country.

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