Research Article (Open access)

Study of Orthopedic Injuries Pattern by Road Traffic Accident Victims

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ABSTRACT- Road traffic accidents (RTA) are a continuing endemic occurrence both in the developed and developing countries, leading to one of the highest causes of mortality and morbidity. 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 one moving vehicle is involved. The current study was a cross sectional study seen the pattern of injuries occurred by RTA. The total numbers of 384 RTA victims were undertaken in this study at Lord Buddha Koshi Medical College, Saharsa, Bihar, India from Jan 2016 to Jun 2016. The total numbers of 384 RTA victims were undertaken in this study. Age & sex wise distribution were analyzed. Types of injury, causes, and outcome were also analyzed. In this study, we were concluded that the age and sex distribution is independent of accident occurrence. It was clear that fractures on head & face are common in RTA. Fractures in lower limb and upper limb are also common in road traffic accidents. The present study showed that the motorcyclist is at most risk. Various reports in India have shown that the outcome of RTA is not only a health hazard but also an economic burden.

Key-words: Public Health Issue, Road Traffic Accident, World Health Organization

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INTRODUCTION

Road traffic accidents (RTA) are a continuing endemic occurrence both in the developed and developing world leading to one of the highest causes of mortality and morbidity. 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 one moving vehicle is involved. The RTA is a collision between vehicles; between vehicles and pedestrians; between vehicles and animals; or between vehicles and geographical or architectural obstacles.' Road traffic accidents are a human tragedy. The Global status report on road safety 2013 indicates that worldwide the total number of road traffic deaths remain unacceptably high at 1.24 million per year. RTA involves high human suffering and socioeconomic costs in terms of premature deaths, injuries, loss of productivity, and so on [1].

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Over 65% of accidents occur because of vehicles travelling at excess speed and or drivers disobeying traffic signals. Road traffic injuries are increasing exponentially year by year along with advances in technology to improve vehicular speed and efficiency. Most of these unfortunate events can be attributed to human errors which are absolutely preventable in nature.

According to the information available from World Health Organization (WHO), road traffic injuries are the sixth leading cause of death in India with a greater share of hospitalization, deaths, disabilities and socio-economic losses in the young and middle-aged population [2-4].

In India, as per previous data analysis for individuals of more than 4 years of age, more life years are lost due to traffic crashes than due to cardiovascular diseases or neoplasm [4-6]. India is no exception and data showed that more than 1.3 lakh people died on Indian roads giving India the dubious honour of topping the global list of fatalities from road crashes [7]. The financial burden due to road traffic accidents is estimated to be around 12000 crores per year.

This study aims to conduct a comprehensive baseline data on the pattern of injuries occurred in study area due to road traffic injury and provides feedback on recommendations for protection of vulnerable parts of the body and prevention of accidents to the target population. The present study also aims to analyze the pattern of injuries in

relation to the mode of travel, type of injury and the distribution over the body the present study was done with particular reference to age and sex. This conducted study may help the policy makers and the researchers to prevent the further deaths and disabilities due to these collisions.

MATERIALS AND METHODS

Study Design

It was a descriptive, cross-sectional, period prevalence hospital based study.

Study Area

Study area was including all those patients involved in RTA in Orthopedic OPD of the hospital district.

Study Time Period

Jan 2016 to June 2016

Target Population

The target populations were the general population of Saharsa, Bihar, India.

Sample Size

From the review of the previous studies done on the similar lines the sample size was calculated using the given formula:

$$n = Z^2p\ (1\text{-}p)/d^2$$

Where, z = 1.96, p = 0.50, 1– p = 0.50, d = 0.05, minimum sample size required is 384.

Variables

Age and sex of the accident victims caused of accidents and types of injuries.

Data Analysis

The collected data was entered and analyzed using SPSS 22.0. Frequencies and percentages were given for qualitative variables.

RESULTS

Age and sex wise distribution of accident victims was represented in Table 1. It is clear that the age and sex distribution is independent of accident occurrence ($p>0.05$) *i.e.* male and female, both were equally likely to get into accidents and it was also cleared that all the age groups have almost the same number of accidents.

Clinically, the injury pattern was distributed and shown in Table 2. Maximum victims (50%) got fractures on head and face. Significant number of victims got fractures in lower limb & upper limb (26% & 32% respectively). Almost 29% victims got multiple injuries. Fractures on the chest were shown only 23% victims.

Mode of Causation of accidents can be as shown by Table 3. Maximum number victims (48%) were motorcyclist. Cyclist & pedestrian's victims were almost same (16%). Passenger, LMV & heavy vehicles, victims were 5%, 7% & 8%.

Outcome of the treatment is shown in Table 4 that 92% patient's got improvement. The 4% patients referred to the higher centre, while 3% patients were absconded/LAMA. A very few (1%) victims got death.

Table 1: Age & Sex wise distribution of accident victims

Age group	Male	Female	Total N (%)
0-10	23	18	41(10.68)
10-20	45	21	66(17.19)
20-30	32	26	58(15.10)
30-40	43	28	71(18.49)
40-50	49	36	85(22.14)
50-60	29	34	63(16.41)
		p>0.05	

Table 2: Injury pattern of accident victims

Injury pattern	N(%)
Head & Face (Fractures)	192 (50)
Lower Limb (Fractures)	100(26)
Upper Limb (Fractures)	123(32)
Chest[Ribs] (Fractures)	23(6)
Surface and Integumentary region	19(5)
Abdomen	19(5)
Spine Fractures	15(4)
Multiple injury	111(29)

Table 3: Mode of Causation of accident victims

Mode of Causation	N(%)
Passenger	25(7)
Cycle	62(16)
Motorcycle	186(48)
LMV	21(5)
Pedestrian	61(16)
Heavy Vehicle (Truck, Bus, Dumper etc)	29(8)

Table 4: Outcome after treatment of accident victims

Mode of Causation	N(%)
Improvement	354(92)
Referred to higher centre	14(4)
Death	3(1)
LAMA/Absconded	13(3)

DISCUSSION

This study recorded three hundred eighty four cases of bone fractures over a period of six months and fractures were observed to occur more in the lower extremities, with the femur fractures on the head and face being the most commonly fractured was in RTA. Fractures in lower limb & upper limb are also common in road traffic accidents. The present study shows that motorcyclist is at most risk. Students and businessmen were the most injured because of

the rush through heavy traffic to get to their businesses and to the school. A similar observation was noted in the previous study by others [8,9]. Various reports in India have shown that the outcome of RTA is not only a health hazard but also an economic burden. The Planning Commission of India in its 2001–2003 research estimated that traffic collision/accidents resulted in an annual monetary loss of $10 billion (INR 550 billion) during the years 1999-2000. Furthermore, in the 2012, the International Road Federation (IRF) concluded that the traffic accidents results in an annual monetary loss of $20 billion (INR 1 trillion (short scale) in India. The observed distribution could have been a consequence of the extensive mobility inherent in individuals within this age group [10]. Furthermore, male predominance for fractures could be attributed to the involvement in manual activities (construction, vehicular driving, motorcycle riding etc.) which may result in an RTA. Road traffic accidents have been reported to be a major cause of bone fractures [10-17].

CONCLUSIONS

Road traffic crashes represent a most important public health problem in our setting and contribute significantly to unacceptably high morbidity and mortality. There is need for legislation against alcohol consumption among motorcyclists during riding hours and enforcement of speed limits by government in order to reduce RTAs among motorcyclists. Early recognition and prompt treatment of road traffic injuries is essential for optimal patient outcome. In our study we concluded that age & sex distribution is independent of accident occurrence. In the present study , Road Traffic Accidents (RTA) were evaluation to be a leading cause of bone fractures especially in individuals in their 3rd and 4th decades of life, constituting most of its victims. So it is well known that RTA problems a major public health issues having a great economic consequences. Mostly probably males were observed to be predominantly involved with the lower extremity the most affected site of bone fractures.

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