

Pattern of Fractures and Dislocations in Road Traffic Accident Victims in a Tertiary Care Institute of Central India

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Abstract

Introduction: Due to the rapid economic transition, there is an increase in a number of automobiles on the road and rapid increase in road traffic accident (RTA).

Aim: The study was conducted with the aim to evaluate the pattern of different types of fractures and dislocations in the RTA victims in a tertiary care institute.

Materials and Methods: The study was conducted at Chirayu Medical College and Hospital situated on the Bhopal-Indore State highway with heavy traffic load. The data of 748 RTA victims admitted to the hospital were collected from January 2013 to December 2015 and analyzed.

Results: Most of the victims were young in the age group of 15-30 years - 254 (33.9%). Most of the accidents were due to the driving of two wheeler 440 (58.8%) patients.

Conclusion: As seen there is an alarming increasing trend of trauma cases in the last decade. Trauma causes significant financial and social burden requiring prioritized focus and attention. A cost-effective policy should be kept in mind in the triage of trauma patients. Similar studies help in making policy and planning for trauma patients and decrease the morbidity and mortality. Further research should be done to better understand RTA and prevention strategies.

Key words: Head injury, Road traffic accidents, Trauma

INTRODUCTION

During 2008, road traffic injuries (RTI) ranked fourth among the leading causes of death in the world.¹ Nearly, 1.3 million people die every year on the world's roads and 20-50 million people suffer non-fatal injuries, with many sustaining a disability as a result of their injury.² RTI are the leading cause of death among young people aged 15-29 years and cost countries 1-3% of the gross domestic product.^{2,3}

The World Health Organization in its international conference on road traffic accident (RTA) noted the

importance of adequate data on traffic injuries. Indeed, accurate estimates of the public health burden of RTA can establish the priority of this public health problem and provide a rational basis for policy decisions.^{4,5}

India has just 1% of the total vehicles in the world but it contributes to 6% of the global RTAs.⁶ Estimates suggest that Delhi has the highest number of road crash fatalities in India.⁷

Hence, this study was conducted to study the socio-demographic profile of victims with RTI and pattern of fractures and dislocations sustained.

MATERIALS AND METHODS

After Ethical and Research Committee clearance, the data were retrospectively analyzed. All trauma case files between January 2013 and December 2015 were retrieved from medical record section through a proper channel and all

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data's mentioned in case record format were extracted from individual files. A total of 748 cases were found in which fracture or dislocation of bones or some joint occurred, depending on these cases observations and results were laid down. A detailed history and examination of all patients were done with regards to age, sex, injury type (blunt/penetrating), and mode. Apart from these injury patterns, causes of head and spinal cord injury were also noted. Any injury on the road without the involvement of a vehicle (e.g., a person slipping and falling on the road and sustaining injury) or injury involving a stationary vehicle (e.g., persons getting injured while washing or loading a vehicle) was excluded from the study.

RESULTS

In our study, the majority of the patients belong to the 15-30 and 31-50 years age group. A total number of male patient in our study was 598 (79.4%), whereas the number of female patients, in our study, was only 150 which comprise only 20.05% of the total patient (Table 1).

In our study, a maximum 440 (58.8%) cases were from fall from the motorcycle followed by injury from cycle accident which were 122 (16.3%), the least common mode of injury was hit by an animal which was only 1.5% in our study (Table 2).

In our study, multiple fractures in which more than two sites involved were found in majority 123 (21.39%) of the cases followed by fractures of the tibia and fibula 73 (12.69%). Spine and patella fractures were the least commonly found fracture in our study which accounts for only 08 (1.39%) and 6 (1.04%) cases, respectively (Table 3).

In our study, wrist joint was the most commonly dislocated joint found in 76 (61.78%) of the cases followed by elbow joint dislocation found in 32 (18.49%) of the cases. Ankle joint was the least commonly affected joint in our study which was found only in 15 (8.67%) of the cases (Table 4).

DISCUSSION

Due to the rapid economic transition, there is an increase in a number of automobiles on the road and rapid increase in RTA. In this study, most of the injuries were seen in age group of 15-30 years - 254 (33.9%). Similar findings were noted in a study which was done by Swarnkar *et al.* in a hospital in central India.⁸ This age group is the most productive age group, and trauma and its morbidity result in a huge economic setback for the country. A total number of male patient in our study was 598 (79.4%), whereas the number of female patients in our study was only 150

Table 1: Demographic profile of the patients

Variables	N=748 (%)
Age	
<15	160 (21.3)
15-30	254 (33.9)
31-50	250 (33.4)
>50	84 (11.2)
Sex	
Male	598 (79.94)
Female	150 (20.05)

Table 2: Mode of injury

Mode of injury	N=748 (%)
Motor cycle fall	440 (58.8)
Bicycle	122 (16.3)
Pedestrian	72 (9.62)
Car accident	72 (9.62)
Heavy motor vehicle	30 (4.01)
Animal	12 (1.60)

Table 3: Distribution of the patients according to the bones involved in fracture

Bone	N=575 (%)
Head	18 (3.13)
Spine	12 (2.08)
Radius and ulna	46 (8.00)
Tibia and fibula	73 (12.69)
Radius only	34 (5.91)
Humerus	45 (7.82)
Ulna only	28 (4.86)
Tibia only	22 (3.82)
Femur	16 (2.78)
Hand	62 (10.78)
Spine	8 (1.39)
Foot	42 (7.30)
Pelvis	14 (2.43)
Fibula only	32 (5.56)
Patella	06 (1.04)
Multiple fractures	123 (21.39)
Total	575 (100)

Table 4: Distribution of the patients according to the site of dislocation

Joint dislocation	N=173 (%)
Shoulder	21 (12.13)
Ankle	15 (8.67)
Elbow	32 (18.49)
Hip	12 (6.93)
Wrist	76 (61.78)
Knee	17 (13.82)
Total	173 (100)

which comprise only 20.05% of the total patient. Similarly, a male predominance was seen in other studies which were done in India,^{9,10} which could have occurred due to the fact that in India, males are still the main working community

and are hence more exposed to work-related stress and workplace injuries.¹¹

In our study, a maximum 440 (58.8%) cases were from fall from the motorcycle followed by injury from cycle accident, which were 122 (16.3%). Two wheeler fall injury represented the majority of victims sustaining injury as a result of being knocked by a vehicle, motorbike, or cycle. This shows the erratic behavior and reckless driving on the road besides this condition of road light is not adequate on the highway. Our findings are consistent with the study done by Mishra *et al.*¹² In our study, multiple fractures in which more than two sites involved were found in majority 123 (21.39%) of the cases followed by fractures of the tibia and fibula 73 (12.69%). Spine and patella fractures were the least commonly found fracture in our study which accounts for only 8 (1.39%) and 6 (1.04%) cases, respectively. A similar result was obtained by Mishra *et al.* and Meena *et al.*^{12,13} In our study, wrist joint was the most commonly dislocated joint found in 76 (61.78%) of the cases followed by elbow joint dislocation found in 32 (18.49%) of the cases. Ankle joint was the least commonly affected joint in our study which was found only in 15 (8.67%) of the cases. A similar result was obtained by Lalwani *et al.*¹⁴

CONCLUSION

In India, trauma is a significant social and financial burden, which requires attention. An effort has been made to decrease the morbidity and mortality which are associated with fall and RTAs in this region. Improvement in infrastructure and behavior change can decrease the burden of RTAs in India. This study could assist in raising

the profile of RTAs as a public health problem which needs to be addressed as a preventable cause of RTAs.

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