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Prevalence of Road Traffic Accident (RTA) Cases Attends in Emergency Department of a Tertiary Hospital

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Abstract **Original Research Article**

Background: Road Traffic Accidents (RTAs) remain a critical global issue, inflicting significant human and economic tolls annually. These unfortunate occurrences not only claim lives but also inflict severe injuries, disabilities, and impose substantial social and economic hardships on the communities affected. ***Objective:*** In this study our main goal is to evaluate the evaluate the prevalence of Road Traffic Accident cases attend in Emergency Department of a Tertiary hospital. ***Method:*** This cross-sectional study was carried out at tertiary medical college and hospital from January'22 to June'23. While using systematic sampling technique, a total of 148 RTA cases were registered for the study. The cases or their attendants after obtaining informed and written consent were interviewed by using a semi structured questionnaire. ***Results:*** Throughout the study, the male population was the predominant demographic, and most patients (39.19%) fell within the above 40 age category. Among those above 40, 29.73% were male, while 9.45% were female. The prevailing injuries consisted of fractures and dislocations, affecting 42.58% of the total cases. Additionally, 29.05% of patients suffered solely from soft tissue injuries, and 19.59% endured head injuries. A smaller subset (7.43%) faced both soft tissue injuries and fractures, while only 1.35% experienced spinal cord injuries. The accidents were most commonly associated with CNG vehicles (28.38%), followed by auto rickshaws/vans (15.54%), bicycles (8.78%), and incidents during road crossings (9.46%). The management approach was personalized, with surgical intervention being the primary requirement in the majority of cases, while ICU support was needed for only a fraction of the patients. ***Conclusion*:** Based on our study findings, it is evident that fractures and dislocations were the most common injuries observed in road accident patients. The prominent sources of road accidents were CNG vehicles and motorcycles. Considering these results, it becomes crucial to take into account the recommendations from the world report on road traffic injury prevention and ensure their prompt implementation. To effectively combat the continuously increasing epidemic of road traffic accidents, a high level of awareness is essential among both road users and administrators regarding road travel discipline.

Keywords: Road Traffic Accidents, disabilities, surgical intervention.

INTRODUCTION

Road Traffic Accidents (RTAs) continue to be a pressing global concern, causing substantial human and economic losses each year. These incidents not only lead to loss of life but also result in severe injuries, disabilities, and significant social and economic burdens on affected communities. The prevalence of RTA cases attending medical facilities has been a critical area of study, providing valuable insights into the frequency, types, and patterns of road accidents in different regions [1-4].

Understanding the prevalence of RTA cases attending medical facilities is essential for various reasons. First and foremost, it helps in identifying the

areas and roadways with high accident rates, enabling authorities to implement targeted safety measures and improve infrastructure to reduce the occurrence of such accidents. Furthermore, analyzing the types of injuries commonly associated with RTAs provides valuable data for developing effective emergency medical response protocols and enhancing trauma care services [5-7].

In this context, this study aims to explore the prevalence of RTA cases attending medical facilities in a specific region or population. By examining the types of accidents and injuries observed, we seek to gain deeper insights into the factors contributing to these incidents and identify potential areas for intervention. The results of this study will not only contribute to the existing body of knowledge on road safety but also aid policymakers and healthcare professionals in devising evidence-based strategies to mitigate the impact of road traffic accidents.

This research endeavors to shed light on the gravity of RTAs and their associated consequences, emphasizing the urgent need for comprehensive road safety initiatives. By analyzing the prevalence of RTA cases attending medical facilities, we hope to contribute to the collective efforts aimed at creating safer road environments and reducing the toll of human suffering caused by road traffic accidents.

OBJECTIVE

- To asses the Road Traffic Accident cases attend in Emergency Department of a Tertiary Medical college.

METHODOLOGY

A cross-sectional study was conducted at a tertiary medical college and hospital spanning from January 2022 to June 2023. Employing systematic sampling techniques, a total of 148 Road Traffic Accident (RTA) cases were enrolled for the study. Interviews were conducted with the cases or their attendants, who provided informed and written consent, using a semi-structured questionnaire.

Patients who declined to provide consent or those with very brief hospital stays were excluded from the study. The statistical analysis was performed using SPSS version 20.0, and the data were presented in terms of percentages and frequencies.

RESULTS

In table-1 shows age distribution according to gender where most of the patients belong to above 40 years age, 58(39.19%), where in above 40 age group 29.73% were male and 9.45% were female. The following table is given below in detail:

Table-1: Age distribution according to gender

Age	No. of cases	Male	Female
01 year to 10 years	21(14.19%)	13(8.7%)	8 (5.40%)
11 yrs to 20 years	15(10.13%)	11(7.43%)	4(2.81%)
21 yrs to 30 years	28(18.92%)	20(13.51%)	8(5.40%)
31 yrs to 40 years	26(17.57%)	19 (12.84%)	07(4.73%)
Above 40 years	58(39.19%)	44(29.73%)	14(9.45%)
Total cases	**148 (100%)**		

In Figure-1 shows gender distribution where majority were male, 109(73.65%). The following figure is given below in detail:

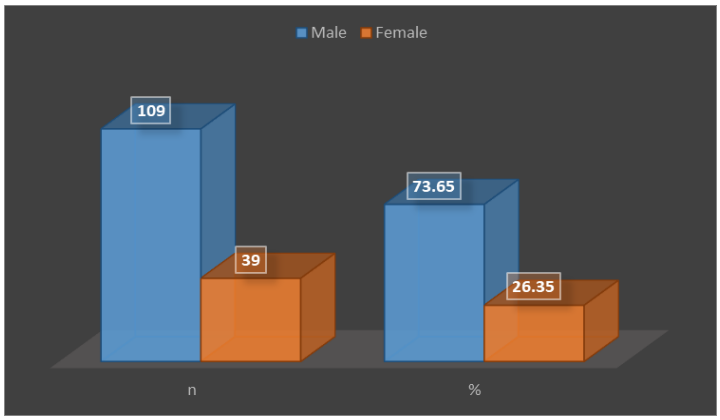

Figure-1: Gender distribution

In Figure-2 shows religion status of patients where most of the patients belong to Muslin religion, 86.49%. The following figure is given below in detail:

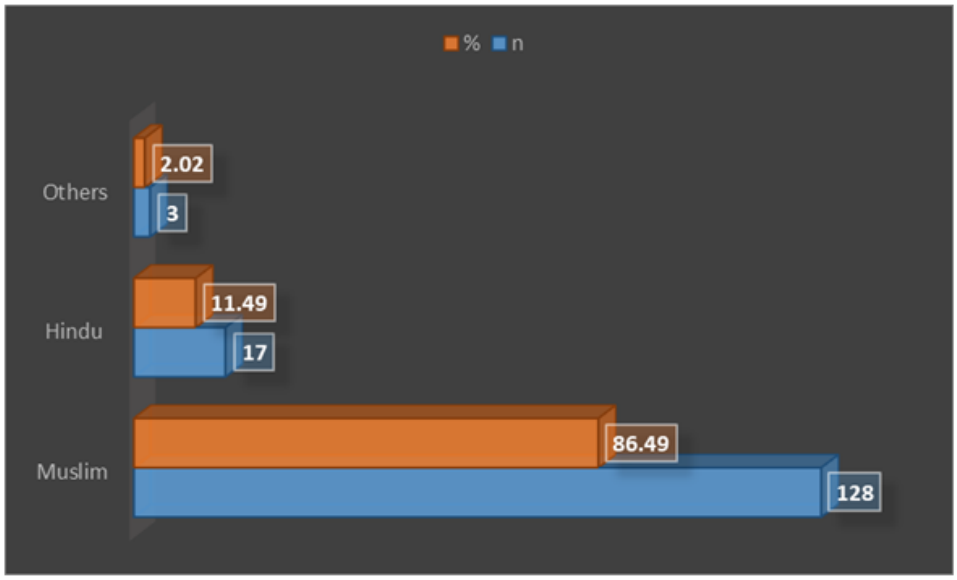

Figure-2: Religion status of patients

In Table-2 shows types of injury of the patients where majority had fracture and dislocations, 42.58% followed by 29.05% had only soft tissue injury, 19.59% had head injury, 7.43% had soft tissue injury with fracture and only 1.35% had spinal cord injury. The following table is given below in detail:

Table-2: Types of injury of the patients

Name of the injury	No. of cases	Percentage (%)
Only soft tissue injury	43	29.05
Head injury	29	19.59
Fracture & dislocation	63	42.58
Both soft tissue injury with Fracture	11	7.43
Spinal cord injury	02	1.35
Total cases	**148**	**100%**

In Table-3 shows type of vehicles involved during the accident where common vehicle for accident was CNG, 28.38% followed by 15.54% cases were auto rickshaw/ van, 8.78% were bi-cycle, 9.46% cases during crossing road. The following table is given below in detail:

Table-3: Type of vehicles involved during the accident

Name of vehicle	No. of cases	Percentage (%)
CNG	42	28.38
Auto-rickshaw/ van	23	15.54
Rickshaw	08	5.40
Bi-cycle	13	8.78
Motorcycle	34	22.97
Bus	09	6.08
Lorry	01	0.68
During crossing road	14	9.46
Not mentioned	04	2.71
Total cases	**148**	100%

In Table-4 shows Patients admission status where majority of the patients admitted to hospital, 70.95% where as only 10.81% cases advised not to admitted. The following table is given below in detail:

Table-4: Patients admission status

Admission	Number	Percentage (%)
Admitted to hospital	105	70.95
Advice not to admitted	16	10.81
Referred	12	8.11
Patient refuse to admit	15	10.13
Total cases	**148**	**100%**

In Table-5 shows management given according to requirement where surgical intervention required in most of the cases, % where as ICU support require only % cases. The following table is given below in detail:

Table-5: Management given according to requirement

Management status	Number	Percentage (%)
Surgical intervention required	96	64.87
ICU support required	09	6.08
General management given	16	10.81
Patient refuse to take treatment	15	10.13
Referred	12	8.11
Total cases	**148**	**100%**

DISCUSSION

Findings from the present study revealed a significant male predominance, with 73.65% of the cases being males. This observation was consistent with two other studies that also found males to be predominantly involved in road traffic accidents [5, 6]. The highest number of cases occurred within the age group of 16-30 years (40.0%), followed by 31-45 years (25.8%). This trend aligned with two other studies, reporting that the majority of cases fell within the age range of 15-30 years (38.3% and 50%, respectively), followed by the 31-45 years age group [7, 8].

The gender disparity could be attributed to the fact that males tend to travel more frequently for work-related and other purposes compared to females. Another report documented that the majority (60.2%) of the cases were pedestrians, while two-wheelers accounted for 23.6% of the cases. Conversely, other studies mentioned that two-wheeler occupants constituted the highest number of road traffic accident cases (49.7% and 73%, respectively), followed by pedestrians (13.4% and 10%, respectively). This difference might be due to the lack of separate sections or footpaths for cyclists or pedestrians on the roads, respectively [9, 10].

Regarding the vehicles involved in the accidents, our study found that the most common vehicle was CNG (28.38%), followed by auto rickshaws/vans (15.54%), bicycles (8.78%), and incidents during road crossings (9.46%). In contrast, two other studies found that two-wheelers were responsible for the highest number of accidents (31.9% and 24.5%, respectively), followed by light motor vehicles (29.8% and 15%, respectively). However, another study reported that 71.4% of victims were hit by four-wheelers.

Regarding the types of injuries, our study showed that fractures and dislocations were the most common (42.58%), followed by soft tissue injuries (29.05%), head injuries (19.59%), soft tissue injuries with fractures (7.43%), and spinal cord injuries (1.35%). In contrast, one study reported that the most common injuries were abrasions (54.62%), followed by contusions (20.25%) and lacerations (16.55%). The most frequently injured anatomical part was the lower limb (37.39%), followed by the upper limb and face. Among fractures, upper limb fractures were more common than lower limb fractures [11].

These findings highlight the importance of understanding the demographics and patterns of road traffic accidents to implement targeted preventive measures and enhance safety on the roads. The prevalence of specific injury types and vehicle involvement can aid in designing effective interventions to reduce the impact of road accidents on public health and overall well-being.

CONCLUSION

Our study reveals that road accident patients commonly experienced fractures and dislocations, with CNG vehicles and motorcycles being the primary sources of such accidents. Furthermore, we strongly advocate the adoption and swift implementation of the recommendations from the world report on road traffic injury prevention. It is imperative that both road users and administrators maintain a high level of awareness

regarding road travel discipline to effectively combat the escalating epidemic of road traffic accidents.

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