

SHORT ARTICLE


Clinico-epidemiological profile of trauma victims in a tertiary care hospital in rural setting of Central Uttar Pradesh

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Abstract

Background: In the present scenario of unprecedented population growth and development in India, we are also facing tremendous increase in cases of trauma victims and this burden is not only in economic terms, but also has significant physical, mental and social impacts. **Aim and objectives:** To determine the clinic-epidemiological profile and treatment outcome of trauma victims in a tertiary care hospital in rural setting. **Material and Methods:** A cross-sectional hospital based study was carried out on 700 trauma victims reporting the hospital at Uttar Pradesh University of Medical Sciences in Etawah district of Uttar Pradesh for a duration of one and half year i.e. from January, 2015 to June, 2016. A clinico-epidemiological profile of the study subjects including specific details like mechanism and type of injuries, interval of presentation of trauma victims to the hospital and treatment outcome of the injury was recorded. The data was analysed using spss software 21st version. **Results:** Study revealed that nearly two-thirds (63.43%) of the studied trauma victims were in the 10-40 years of age-group with three-fourth of them being males (75.57%). Road traffic accident was the most common mechanism of injury (68.86%). Majority (88.0%) of trauma victims needed admission for management of injuries. **Conclusion:** Road Traffic Accident (RTA) is the major form of trauma received by the people and that too in majority by the youths hence proper behaviour change communication and health education regarding safety measures to prevent trauma should be provided to the youths.

Keywords

Trauma; Road traffic accident; Type of injury; Mechanism of injury; treatment outcome of RTI

Introduction

No age or sex is free from trauma, and every individual must have suffered some or the other

form of trauma in his or her life. Among the various forms of trauma, Road Traffic Injury (RTI) is an important cause of disability Worldwide.(1) As

stated by Deutsche Welle report 'India has the highest number of road accidents in the world' (2) as well as highest number of deaths due to it. (3) Every year 1,30,000 deaths are reported due to RTA in India (2,4,5,6,7) which accounts for 6% of the global burden, though it has only 1% of the vehicles globally. (6,7,8)

Road traffic injuries have terrible effects not only to victim, but also on family and dependent ones. This burden is not only in economic terms, but also has significant physical, mental and social impacts. There is lack of proper documentation of accidents in India and lesser awareness of their contribution to the burden of disease is the reason behind their neglect in research and policy. (9)

Road traffic injuries are a major but highly neglected public health challenge that requires concerted efforts for effective and sustainable prevention. This study was conducted to throw light on the treatment outcome of the patients with trauma in a rural setup.

Aims & Objectives

1. To determine the clinico-epidemiological profile of the trauma victims reporting to the casualty department of a rural hospital.
2. To assess the treatment outcome of the patients with trauma admitted in the hospital

Material & Methods

A cross-sectional hospital-based study was carried out on 700 patients of trauma victims who reported to the casualty and the out-patient department (OPD) of Uttar Pradesh University of Medical Sciences in Saifai tehsil of Etawah district which is a tertiary care hospital in rural setting of Central Uttar Pradesh during the study period of one and half year duration i.e. from January, 2015 to June, 2016. Trauma victims of all-ages or their attendants who gave the written informed consent for being a participant of the study were included as study subjects. Exclusion criteria for the study included those not providing consent, went LAMA (leave against medical advice) during the course of management or brought dead to the hospital after trauma.

A clinico-epidemiological profile of the study subjects including specific details like mechanism and type of injuries, time interval of presentation of trauma victims to the hospital and treatment outcome of the injury was recorded. A semi-structured, pre-tested questionnaire was used to collect the required information. Informed written

consent was taken from the participating study patients or their attendants if the patient was unconscious or seriously ill at the time of the first meeting with the researcher. To maintain the internal validity of the data, the information was collected from all the participating patients by the researcher himself. This, hence, removed the possibility of inter-observer bias.

Prior ethical clearance was taken from the Institute's ethical clearance committee before the commencement of the study.

Results

[Table 1](#) depicts the demographic details of the study subjects. Out of the 700 trauma victims studied, 200 (28.57%) were in the age group of 21-30 years followed by 122 (17.43%) in 11-20 years and same proportion in 31-40 years age group. Majority of the trauma victims were males i.e. 529 (75.57%).

[Table 2](#) reveals that Road Traffic Accidents (RTA) was the most common mechanism of injury seen in 482 (68.86%) of the trauma victims. The most common type of injury was fracture 281 (40.14%) followed by laceration 254 (36.29%), blunt injury 212 (30.29%) and head injury in 194 (27.71%) of the study subjects.

The treatment outcome of trauma victims in relation to the reporting time interval to the health facility was determined and it was observed that only 6.57% of trauma victims could reach to casualty department within 1 hour of receiving trauma while most of them (58.29%) took 1-6 hours followed by 6-12 hours (26.29%) and majority of them were successfully treated ([Table 3](#)).

[Table 4](#) depicts the treatment outcome in relation to the type of injury and it was observed that mortality was higher (17.53%) in victims with head injury having internal haemorrhage in comparison to victims with fracture (5.69%). The difference in the treatment outcome and its association with the type of injury in the studied trauma victims was found to be statistically significant ($p < 0.05$).

Discussion

The present study revealed that nearly two-thirds (63.43%) of the studied trauma victims were in the 10-40 years of age-group with majority (28.57%) in 21-30 years age group. Almost three-fourth of the victims reported during study period were males (75.57%). Mishra B et al in his study have reported that most of the victims (40.8%) were young (15-30 years) while Ganveer GB et al reported that out of

total subjects, 85.8% were males and majority of the victims (75%) were in the age group 18-37 years.(10,11) Similar findings with male predominance in road traffic accidents have been reported by studies done by various researchers.(12,13) It depicts that the male youths have preponderance for receiving trauma, probably, because of their increased social outings and exposure.

Road Traffic Accidents were the most common mechanism of injury (68.86%) among the study subjects reported with trauma. In most instances, more than one type of injuries happened in trauma victims. The most common type of injury was fracture (40.14%) followed by laceration (36.29%) and blunt injury (30.29%). Similar observations with predominance of abrasions, lacerations, fractures among RTA victims was reported by studies done by Singh R et al, (14) Gissane W et al (15) and report from WHO. (16)

Magnitude of severity of injury is evident from the findings that majority (88.0%) of trauma victims presenting to the hospital needed admission for management of injuries while only 12% of patients were treated on out-patient department (OPD) basis.

In our study, most of the trauma victims attending casualty department were successfully treated (93.71%) and recovered from their injuries while none of them were referred to other/higher centre. Only 6.29% patients succumbed to death during the course of treatment at the health facility. This shows the efficacy of trauma management in the studied tertiary care centre and that too in the rural setting. Shortening the time interval for basic life support, and rapid access to comprehensive trauma care within the so called "golden hour of shock" is crucial for the survival of trauma victims. Only 6.57% of trauma victims could reach to casualty department within 1 hour of receiving trauma while most of them (58.29%) took 1-6 hours followed by 6-12 hours (26.29%). A study conducted by Sharma D et al in, Anand district of Gujarat during the year 2011 reported that around half of victims (48.8%) reached hospital within half an hour of accident. (17) In our study, the outcome of treatment provided to trauma victims in reference to the reporting time interval in hours was not found to be statistically significant. This may be because of the fact that majority (93.43%) of our study subjects reported to the

hospital after the golden hour of trauma management.

The association between type of injuries in the studied trauma victims and the outcome of injury management was found to be statistically significant ($p < 0.05$). The death rate was highest (17.53%) among patients who had head injury (internal haemorrhage) with the attributable death rate of 77.27%

Conclusion

Our study revealed that majority of the trauma victims reported to the tertiary care health centre were males in the age group of 10 to 40 years. Road traffic accident was the most common mechanism of injury with fracture and laceration being the most common type of injury. Majority of the trauma victims were hospitalized for treatment and treatment outcome was better in those who reported within one hour of succumbing injury. Head injury with internal haemorrhage was the most fatal cause for mortality among trauma victims.

Recommendation

Our study findings suggest that RTA is the major form of trauma received by the people and that too in majority by the youths hence proper behaviour change communication and health education regarding safety measures should be provided to the youths. As the burden of trauma victims is increasing, it is necessary to take a multi-sectoral approach for its prevention and control.

Limitation of the study

Data about trauma victims was collected only from those who reported at the casualty / out-patient department of the studied tertiary care hospital. As our hospital do not have the mortuary hence it is assumed that we missed the data regarding those trauma patients who died within the golden hour of shock and were taken by the police directly to mortuary at district hospital

Authors Contribution

All authors have contributed equally in this study.

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Tables

TABLE 1 DEMOGRAPHIC PROFILE OF THE STUDY SUBJECTS

Variable	Total (n=700)	
	Frequency (n=700)	Percentage (%)
Age Groups (years)		
< 10	57	8.14
10 - 20	122	17.43
21 - 30	200	28.57
31 - 40	122	17.43
41 - 50	83	11.86
> 50	116	16.57
Gender		
Male	529	75.57
Female	171	24.43

TABLE 2 PATTERN OF INJURY AMONG TRAUMA VICTIMS

TABLE 2: PATTERN OF INJURY AMONG TRAUMA VICTIMS			
S. No.	Variable	Total (n=700)	
		Frequency	Percentage (%)
Mechanism of injury			
1.	Road traffic accidents (RTA)	482	68.86
2.	Fall from height	109	15.57
3.	Assault	37	5.29

4.	Fire arm	46	6.57
5.	Others (Blunt trauma, Penetrating injuries)	26	3.71
Type of Injury (Multiple response)			
1.	Fracture	281	40.14
2.	Dislocation	18	2.57
3.	Laceration	254	36.29
4.	Crush injury	0	0.00
5.	Loss of limb	0	0.00
6.	Blunt injury	212	30.29
7.	Head injury (Internal hemorrhage)	194	27.71
Severity of injury			
1.	Serious/ admitted patient	616	88.00
2.	Out-patient basis treatment	84	12.00

TABLE 3 ASSOCIATION BETWEEN REPORTING TIME INTERVAL PERIOD AND OUTCOME OF INJURY IN THE STUDY SUBJECTS

S. No.	Reporting Interval Period (Hours)	Number of reporting trauma victims (n=700)		Treatment Outcome of Injury			
		Frequency	Percentage (%)	Successfully treated (n=656)		Death (n=44)	
				Frequency	Percentage (%)	Frequency	Percentage (%)
1.	< 1	46	6.57	46	100.00	0	0.00
2.	1 - 6	408	58.29	382	93.63	26	6.37
3.	6 - 12	184	26.29	167	90.80	17	9.20
4.	12 - 24	38	5.43	38	100.00	0	0.00
5.	> 24	24	3.43	23	95.83	1	4.17

 $\chi^2 = 8.55$

d.f. = 4

p=0.073

TABLE 4 ASSOCIATION BETWEEN TYPE OF INJURY AND ITS TREATMENT OUTCOME IN STUDIED TRAUMA VICTIMS

S. No.	Type of injury	Number of reporting trauma victims (n=700)		Treatment Outcome of Injury			
		Frequency	Percentage (%)	Successfully treated (n=656)		Death (n=44)	
				Frequency	Percentage (%)	Frequency	Percentage (%)
1.	Fracture	281	40.14	265	94.31	16	5.69
2.	Dislocation	18	2.57	17	94.44	1	5.56
3.	Laceration	254	36.29	246	96.85	8	3.15
4.	Crush injury	0	0.00	0	0.00	0	0.00
5.	Loss of limb	0	0.00	0	0.00	0	0.00
6.	Blunt injury	212	30.29	206	97.17	6	2.83
7.	Head injury (Internal hemorrhage)	194	27.71	160	82.47	34	17.53

 $\chi^2 = 46.6$

d.f. = 4

p<0.05