VOLUME-8, ISSUE-12, DECEMBER-2019 • PRINT ISSN No. 2277 - 8160 • DOI : 10.36106/gjra

Original Research Paper

General Surgery

PROFILE OF TRAUMA PATIENTS ATTENDING A TERTIARY CARE HOSPITAL OF RAIPUR CITY (C.G.), INDIA

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ABSTRACT

Introduction- Trauma is a major cause of morbidity and mortality in both developed and developing countries. Occupational injuries leading to disability are also of major concern in a country like India as many industries continue to be unregulated. The majority of trauma deaths occur in the pre-hospital periods due to insufficient pre-hospital care where the first 60 min after trauma has been considered as the "golden hour" of trauma.

Material & method- The retrospective study on trauma patients presenting to the surgery department of Dr. BRAM Hospital, Pt. JNM Medical college Raipur,(C.G) India during study period July 2017 to june 2019. The study recruited all trauma patients more than 18 years of age presenting to the department. The inclusion criteria were all patients who had sustained trauma through RTA, industrial incidents, electrical injuries, fall from height or level ground, or trauma related to assault, sports, and animals. Details of history, physical examination and other necessary findings of all patients were recorded on a standard data collection form.

Result- Out of total 837 study subjects, Majority of the subjects were in the age group of 26 – 40 years (36.9%) followed by 27.6% in the age group of 41 – 60 years. The gender distribution was 61.3% males and 38.7% females. The Triage priority distribution was 13.0% in priority one, 58.8% of the subjects were in priority two followed by 28.2% in priority three. 14.09% of all trauma patients had a TBI.

Conclusions- The prevalence of Trauma cases showing increasing trend as compared to last two decades. Our study shows that RTA and falls are the predominant causes of trauma.

KEYWORDS : Trauma, RTA, Mode of injury

INTRODUCTION-

Trauma is a major cause of morbidity and mortality in both developed and developing countries. The usual causes are road traffic accidents (RTAs), fall from height, occupational injuries, and assault. According to the WHO, RTAs would be the fifth leading cause of death worldwide by the year 2030.[1] Occupational injuries leading to disability are also of major concern in a country like India as many industries continue to be unregulated. The majority of trauma deaths occur in the pre-hospital periods due to insufficient pre-hospital care where the first 60 min after trauma has been considered as the "golden hour" of trauma.[2,3] It is therefore important to quickly assess the severity of the injury accurately and quickly. This study was done to improve the understanding of the mode of trauma and severity of injuries in the current study area so that effective prevention and comprehensive management strategies could be made. With the above background, the present study was conducted see the Profile of trauma patients attending a tertiary care hospital of Raipur City (C.G.), India.

MATERIAL & METHOD

The retrospective study on trauma patients presenting to the surgery department of Dr. BRAM Hospital, Pt. JNM Medical college Raipur,(C.G) India during study period July 2017 to june 2019. The study recruited all trauma patients more than 18 years of age presenting to the department. The inclusion criteria were all patients who had sustained trauma through RTA, industrial incidents, electrical injuries, fall from height or level ground, or trauma related to assault, sports, and animals. Patients aged below 18 presenting with trauma and adult patients who were dead on arrival were excluded from the study. Details of history, physical examination and other necessary findings of all patients were recorded on a standard data collection form. The following were extracted. Triage priority level was defined in three categories. All patients had routine blood investigations and relevant radiological tests. The severity of injury was assessed using the RTS.[3] The region of the body affected was noted, and injuries were classified. After initial stabilization, further appropriate surgical management were performed if necessary. In-hospital outcome of all the admitted patients was noted. Statistical analysis was performed using SPSS software version 18.0. Appropriate statistical test was applied & a two-sided $P \leq 0.05$ was considered statistically significant.

RESULT-

Table 1: Baseline characteristics

Characteristic		Number	Percentage
	Mean age (years) ± SD	39.7± 15.83	
Age distribution (years)	18 – 25	183	21.9
	26 – 40	309	36.9
	41 – 60	231	27.6
	> 60	114	13.6
Sex distribution	Male	513	61.3
	Female	324	38.7
Triage priority level	Priority 1	109	13.0
	Priority 2	492	58.8
	Priority 3	236	28.2

Out of total 837 study subjects, Majority of the subjects were in the age group of 26 – 40 years (36.9%) followed by 27.6% in the age group of 41 – 60 years. The gender distribution was 61.3% males and 38.7% females. The Triage priority distribution was 13.0% in priority one, 58.8% of the subjects were in priority two followed by 28.2% in priority three. [Table.1]

Table. 2- Severity of traumatic brain injury and mode of injury

Mode of injury	Mild (n = 69) (%)	Moderate (n =22) (%)	Severe (n = 27) (%)	Chi-square, df, p-value
Two-wheeler	35 (55.6)	11 (17.5)	17 (27.0)	3.67, 10, 0.96
Four-wheeler	9 (69.2)	3 (23.1)	1 (7.7)	
Auto	2 (66.7)	1 (33.3)	0 (0.0)	
Pedetrian	17 (65.4)	3 (11.5)	6 (23.1)	
Fall from height	2 (28.6)	3 (42.9)	2 (28.6)	
Assault	4 (66.7)	1 (16.7)	1 (16.7)	

14.09% (118/837) of all trauma patients had a TBI. The majority (69%) of those with head injury had mild head injury, 22% had moderate head injury, and 27% had severe head injury. The risk of TBI with different modes of injuries such as

fall from height, two-wheeler accidents, pedestrian injuries, four-wheeler accidents, and assaults but did not find any statistical significance . [Table 2]

Table.3- Predictors of mortality among Polytrauma cases

Risk factors		Alive (n = 93)	Dead (n =11)	Chi-square, df, p-value
Sex	Male	78 (89.7)	9 (10.3)	0.066, 1, 0.79
	Female	15 (88.2)	2 (11.8)	
Mode of injury	Two-wheeler	62 (93.9)	4 (6.1)	2.305, 5, 0.8055
	Four-wheeler	8 (80.0)	2 (20.0)	
	Pedetrian	5 (83.3)	1 (16.7)	
	Fall from height	5 (71.4)	2 (28.6)	
	Auto	4 (80.0)	1 (20.0)	
	Others	9 (90.0)	1 (10.0)	

Polytrauma cases comprised 12.4% of all adult trauma cases. The association between mortality and gender was found not significant. The mortality rate among the polytrauma patient was 10.6% **[Table 3]**

DISCUSSION-

Trauma is a major problem in India with severe and wide-ranging consequences for individuals and society as a whole. In the United States, traumatic injuries account for 30% of life years lost.[4] With rapid economic growth, there is a rapid increase in automobiles and industries across the length and breadth of India, and hence, an increase in the incidence of trauma cases. Male predominance among trauma victims is seen in most international studies; Our study show nearly similar finding.[5-7] This is explained by the fact that in our country, males are predominantly engaged in outdoor activities and operation of automobiles and hence are more vulnerable to injuries. Patients 18–40 years of age were more likely to sustain a traumatic injury. This is consistent with international findings.[8,9]

RTAs was the predominant cause of trauma, a result consistent with other studies from India and abroad.[8,9] Four-wheel vehicles offer a fair amount of protection to those inside unlike two- wheeler passengers and pedestrians who are directly exposed to the elements of the road. This explains the overwhelming majority of the accidents involving two-wheelers and pedestrians, consistent with other Indian studies.[8] TBI is a major public health problem in India as well as in other developing countries resulting in significant morbidity and mortality among the young and productive people of our society. More than two-thirds of these injuries were due to two-wheeler accidents, and one-fourth had severe head injuries. This is a serious concern and stresses the need to make use of helmets compulsory across the country. Compulsory use of helmets must be strictly enforced not only just by the government authorities such as the police but also voluntarily encouraged by the institutions people work for. Many roads in India are unsafe, and traffic regulations are rarely followed by drivers and seldom strictly enforced by the police.

Falls comprised 5.9% of all trauma cases in our study, which is slightly less than the findings of other studies related to trauma.[8]

Polytrauma victims are those patients subjected to multiple traumatic injuries. RTAs and fall from height are the usual causes among regular civilians. Polytrauma patients represent the ultimate challenge to trauma care team in our hospital. The prevalence of polytrauma cases in our study (12.4%) is comparable to the prevalence from studies from North India.[10] Similar pattern of injuries was noted by Goyal et al. in a study from rural Maharashtra.[11]

CONCLUSIONS

The prevalence of Trauma cases showing increasing trend as compared to last two decades. Our study shows that RTA and falls are the predominant causes of trauma. Increasing awareness and proper training of primary physicians and the paramedical team about prevention and early management of trauma are the urgent need of the time. A public Awareness campaign regarding trauma and road traffic accidents should be conducted at regular intervals to decrease the incidence of this type of cases.

Source of funding- None
Conflict of interest- None

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