A Descriptive Study on Determining Prevalence, Pattern and Outcome of Trauma Patients

Vikas Kumar[1], Harpreet Singh[2], Navdeep Singh[3], Ravi Prakash Choudhary[4]

[1]Assistant Professor, Department of Anaesthesia, Adesh Medical College & Hospital, Kurukshetra, Haryana, India
[2]Consultant, Healing Touch hospital, Ambala, Haryana, India
[3]Consultant, Healing Touch hospital, Ambala, Haryana, India
[4]Senior Resident, Department of Anaesthesia, Adesh Medical College & Hospital, Kurukshetra, Haryana, India

Abstract

Background: Trauma is one of the leading cause of deaths in the young population. The burden of trauma tends to range from physiological to economic causes, which could have a significant adverse impact on people. This is especially true for people living in developed countries. Current study focused on assessing the prevalence, pattern and outcome of trauma.

Aim: Aim of the current study is to assess the prevalence, pattern and outcomes of trauma patients.

Methods: The current study was conducted in the Trauma Centre at Healing Touch Hospital Ambala. A total of 10,200 trauma cases reported to emergency department of the hospital between 2015 and 2018 were considered in the current study. The trauma patients were from varying age groups. To perform analysis of the data, researcher developed a trauma profile on basis of consultation of an expert from the Trauma Surgery. In addition, demographic statistics was used to perform an analysis of the data sets.

Results: During the study it was found that majority of the patients had road traffic accident. Further, almost 90% of the patients had suffered a blunt injury, but the condition of 64% of the patients was stable, with 86.9% of patients having systolic blood pressure between the range of 90-119mmHg. 72% patients admitted to the emergency department had normal pulse.

Conclusion: The incidences of trauma were found to be more among the male patients than female patients. The young people are often involved in accidents that lead to trauma. Due to this reason, it can be said that the younger generation is at the most risk of trauma. The trauma patients tend to get pre-hospital care, i.e., care provided to them before they reach the hospital. One of the reasons could be that majority of the patients came to the emergency department in an ambulance, which is well equipped to provide pre-hospital care.

Keywords: Trauma, Road Traffic Accident, Younger Generation

Background

Accidents that lead to trauma are very common in today's world. According to the World Health Organisation (WHO), more than five million people lost their lives in the year 2002. Furthermore, it has been observed that the global mortality rate is at 98 individuals per 100,000, while the male and female ratio is estimated to be 128 and 67 per 100,000 respectively. In the year 2015, more than 460,000 Road Traffic Accidents (RTAs) were reported, that led to approximately 480,000 injuries and nearly 150,000 deaths[1].

It is considered that trauma has a natural history of their own and their spreading pattern also seems to be the same as that of an epidemic or any other disease [2]. Their pattern consists of three key aspects that tend to interact with one another causing injury, damage or even death. These elements are agent, environment, and host. Further, it has been observed that trauma tends to occur more in certain age groups, at specific times of a day and even week and also in some localities[3]. Due to this reason, trauma is considered as one of the main factors that leads to injuries and deaths of people. More than 9% of injuries lead to trauma and eventually death.

According to Aoki (2019) [4], trauma is one of the leading cause of deaths in the young population. The burden of trauma tends to range from physiological to economic causes, which could have a significant adverse impact on people. This is especially true for people living in developed countries.

Aim and Objectives

Aim

Aim of the current study is to assess the prevalence, pattern and outcomes of trauma patients.

Methods and Materials

In order to perform the current study, the researcher relied on using a number of different tools, techniques, and methods. The current study was conducted in the Trauma Centre at Healing Touch Hospital Ambala. To perform the investigation, the researcher relied on using evaluative approach most suitable. By using this approach, it was simpler and easier for the researcher to attain the aim and objectives of the study. A total of 10,200 trauma cases reported to emergency department of the hospital between 2015 and 2018 were considered in the current study. The trauma patients were from varying age groups.

In this regard, the researcher created a basic demographic characteristic of patients admitted to the emergency and trauma department of the hospital. These traits included the likes of time and date, nature and cause of the injury and vital signs [5]. Furthermore, the researcher also recorded the trauma scoring outcome data. In addition to this, the researcher also recorded the type of vehicle as well as mode of collision in case of road traffic injuries, apart from thorough clinical examinations and necessary investigations. The scholar also recorded the daily follow-ups of all patients in the hospital.

To perform analysis of the data, researcher developed a trauma profile on basis of consultation of an expert from the Trauma Surgery. This was the tool used to conduct the current study; it had two sections – A and B. In the section A, a socio-

demographic profile, injury profile and injury scoring, and its relevant references were considered. While in the section B hospital follow up of the admitted patients was considered. In addition, demographic statistics was used to perform an analysis of the data sets.

Results

Table 1: Descriptive Statistics

Variable		Frequency (n)	Percentage (%)
Age	0-10	669	6.55
	11-30	4487	43.99
	31-50	3100	30.40
	51-60	926	9.03
	61 & above	1018	9.98
Gender	Male	7810	76.59
	Female	2390	23.41

From the Table 1, it can be seen that people from the age range of 11-30 years (43.99%) suffered the most from accidents that led to trauma; and people belonging to the age group of 31-50 years (30.4%) suffered the second most from accidents leading to trauma. Individuals below the age of ten years (7.55%) had the least sufferings because of accidents and injuries leading to trauma. The table further suggests that male population (76.59%) had the most accidents that led to trauma, while females (23.41%) were the least affected.

Table 2: Distribution of the subjects according to the case type, referral and prehospital

Variable		Frequency (n)	Percentage (%)
Case Type	Referred	6270	61.47
	Direct	3930	38.53
Source of Referral – Region Wise	Ambala	3839	61.23
	Out of Ambala	2432	38.77
Source of Referral Hospital	Governments Hospital	4550	72.56
	Other Hospitals	1721	27.44
Pre-hospital Care Received	Yes	6270	61.46
	No	3930	32.54
Mode of Transportation of Patient	Other Vehicles	2100	20.65
	Ambulance	8100	79.55
Time Gap Between Trauma and Arrival at the hospital	Less than three hours	805	7.93
	3-6 hours	1651	16.14
	6-12 hours	3119	30.60
	12-24 hours	4104	40.22
	24-48 hours	521	5.10

As per Table 2, most of the patients (61.47%) were referred from other hospitals. Out of these, 72.56% were referred from government hospitals while 27.44% were referred from other hospitals. On the other hand, 38.53% patients were direct patients coming in the Trauma center of the hospital. Further, 61.23% patients were referred to the hospital directly from within Ambala, while 38.77% patients came out of Ambala. 61.46% patients had received pre-hospital care only, but 32.54% patients did not receive the pre-hospital care. Most of the patients (79.55%) used hospital ambulances to come into the hospital, while 20.65% came into the hospital using other vehicles. The time gap for 7.93% patients was less than three hours, while for 16.14% patients it was 3-6 hours, for 30.6% patients the time gap was 6-12 hours, for 40.22% patients it was 12-24 hours and for 5.10% patients it was 24-48 hours

Table 3: Distribution of subjects according to Mechanism of Injury, Clinical condition and vital parameters

Variable			Frequency (n)	Percentage (%)
Mechanism of Injury	RTA/MVA		4600	54.24
	Pedestrian		2993	29.33
	Falls	Fall from tree	108	9.16
		Fall from stairs	263	2.56
		Fall from roof	270	2.63
		Fall from vehicle	425	4.17
		Fall from bed	80	0.75
		Self-fall	89	0.90
		Fall of heavy objects	114	1.11
	Firearm Injury		70	0.70
	Assault		644	6.29
	Caused by animal		110	1.07
	Sports Injury		143	1.40
	Train Accident		90	0.90
	Mechanical Injury		166	1.65
	Thunder Lightning		1	0.01
	Others		37	0.36
Type of Injury	Blunt		9110	89.31
	Penetrating		1088	10.69
Clinical Condition	Stable		6620	64.90
	Unstable		3520	34.49
	Brought Dead in ED		59	0.56
GCS	3-8		590	5.27
	9-12		4031	40.11
	13-15		5519	54.42
Vitals	**Systolic Blood Pressure**			
	<90mmHg		700	6.90
	90-119mmHg		8812	86.90
	>12mmHg		628	6.20
	Pulse			
	Bradycardia (<60/minute)		730	7.29
	Tachycardia		2099	20.68
	Normal		7311	72.10

Discussion

Focus of the current study was on assessing the prevalence, pattern, and outcome of trauma on 10,200 patients admitted in Trauma Centre at Healing Touch Hospital Ambala. Through this study, the researcher emphasised on getting a better understanding of accidents and injuries that lead to trauma. From the above results, it can be seen that male patients were more than that of the female patients. Thus, incidences of trauma were found to be more among the male patients than female patients. This finding is similar to the results of other past research studies. In previous investigations as well, it was found that male tend to be more involved in accidents that lead to trauma than that of their female counterparts[6].

According to Vijayabala & Singaram (2016)[7], men face accidents mainly due to the reason that they usually go outdoors for work, sports and other such activities. However, Moran (2018)[8] states that the current situation is changing fast, as an increasing number of women are also engaging in sports and outdoor activities. Coccolini & Roberts (2018)[9] suggests that this is one of the main reasons for the increasing number of women involved in accidents leading to trauma.

Apart from this, during the study, it was further found that young people are often involved in accidents that lead to trauma. Due to this reason, it can be said that the younger generation is at the most risk of trauma. During the study, it was found that 43% of total patients admitted in the emergency department were between the ages of 11-30 years. This is similar to many of the past studies. It has often been observed that the young people tend to drive rash and in an irresponsible manner, due to which then end up in accidents and therefore put theirs as well as other peoples' lives in risk of a trauma. Sperry (2018) [10] suggests that the young people are most at risk of harming themselves and others around them. This is especially prevalent for 'teenagers' and 'young adults'.

The current study also revealed that the trauma patients tend to get pre-hospital care, i.e., care provided to them before they reach the hospital. One of the reasons could be that almost 80% of the patients came to the emergency department in an ambulance, which is well equipped to provide pre-hospital care. According to (Harrois & Soyer, 2018)[11], this is also one of the main reasons that a vast majority of these patients are saved. In view of (Harrois, 2017)[10], first-aid or even pre-hospital care is vital in saving the life of an individual.[12,13]

Conclusion

Although, in recent years the clinical treatment of injury casualty has improved, however for decrease of injury trouble requires great government influences and well Instructional methodology for anticipation and conclusive administration. Regard for recognize and set up injury care framework/Accidental and Emergency office in the different territories of the nation is dire. The aftereffects of this review and different comparable examinations can give an appropriate field to recognizing objective and give an answer for strategy producers in India.

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