

Pattern of Injuries in Trauma Patients Presenting in Accident and Emergency Department of Jinnah Hospital, Lahore

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Objective: To observe the pattern of injuries in patients involved in different kinds of trauma presenting to the Accident and Emergency Department of Jinnah Hospital Lahore. **Design:** A prospective descriptive epidemiological study. **Place and duration of study:** Accident and emergency department of Jinnah Hospital Lahore. From 1st April 2005 to 30th September 2005. **Subjects and methods:** The study included patients presenting with different kinds of trauma to the emergency department of Jinnah Hospital, Lahore. They were further categorized into trauma of different regions of the body i.e. upper limb, lower limb, abdomen, head & neck, thorax and perineum. Then frequency of different types of trauma was determined. **Results:** During this period (1st April 2005 to 30th September 2005), 111,413 patients presented in accident and emergency department and 4680 patients had traumatic injury. 1404 patients (30%) had blunt trauma, 134(2.86%) had penetrating firearms injury, 2433(51.99%) had penetrating sharp injury and 709 patients (15.15%) had crush injury. Most patients got upper limb, lower limb, head & neck and abdominal injuries, in that order. Most patients received multiple injuries. 3340 patients (71.36%) got only minor surgery like stitching under local anaesthesia and 468 patients (10%) had no surgery at all. 872 patients (18.63%) underwent some kind of major surgical procedure like amputation, exploratory laparotomy, or stitching under GA etc. **Conclusion:** Trauma is a leading cause of morbidity and mortality among all age groups. Most of the trauma victims receiving minor injuries can be treated at primary health care centers. This can decrease the load of tertiary care hospitals. Maximum impact in reducing the burden of trauma must come from injury prevention strategies.

Key words: Trauma pattern, blunt injuries, penetrating injuries

Trauma is an injury caused by a physical force. The first recorded medical text, the Smith Papyrus (written over 5000 years ago) gives an account of 48 different injuries described from the head downwards, an approach to the wounded individual that is still used today¹. While no one expects to be seriously injured, trauma is in fact one of the most pressing health problems all over the world. Trauma accounts for more lives lost than heart disease and cancer combined. Optimal care of severely injured patients requires a coordinated approach, from the point of injury through to rehabilitation.

In 1990, about 5 million people died worldwide as a result of injury². It is estimated that by the year 2020, 8.4 million people will die every year from injury, and injuries from road traffic accidents will be the third most common cause of disability worldwide and the second most common cause in the developing world³. It is important that practitioners adopt a logical sequence for the initial assessment and management of trauma patients to reduce morbidity and mortality.

Patients and methods:

This prospective study was conducted at Jinnah Hospital, Lahore during a period of six months from 1st April 2005 to 30th September 2005. All the patients presenting to Jinnah Hospital Emergency with any kind of trauma were included in the study. Burn cases were not included in the study. A proforma was filled for each patient and they were further categorized into trauma of different regions of the body i.e. upper limb, lower limb, thorax, abdomen, head and neck and perineum. Then frequency of different

types of trauma was determined. It included blunt trauma, penetrating trauma, and crush injuries. The statistical analysis included calculation of percentages and proportions and application of test of significance where applicable.

Results:

This prospective epidemiological study showed a high percentage of Accident & Emergency patients being the trauma victims. During a period of six months (1st April, 2005 to 30th September, 2005) 111,413 patients presented in emergency department of Jinnah Hospital, Lahore. Out of those, 4,680(4.20%) patients had traumatic injury. On an average, 780 patients per month presented with trauma in Jinnah Hospital. Most of the patients were between 16 to 45 years of age.

The number of patients is greatest between the ages of 21 and 30. This group is dominated by males who were injured by violence and in motor vehicle crashes. Males also predominate the second peak between ages 31-40(Table-1). Male to female ratio of trauma is 3.30: 1. (Table-2) Again, motor vehicle crashes and violence are the principal causes of injury. Other causes of trauma and their frequency are tabulated. (Table-2)

1404(30%) patients had blunt trauma, 134(2.86%) had penetrating firearms injury, 2433(51.99%) had penetrating sharp injury and 709 patients (15.15%) had crush injury(Table-3). Trauma patients got upper limb, lower limb, head and neck and abdominal injuries, in that order of frequency(Table-4). Most patients received multiple injuries.

3340(71.36%) patients had only stitching in minor OT and 468(10%) patients had only minor abrasions and did not need any stitching even.872 (18.64%)patients underwent some kind of major surgical procedure under general anesthesia like amputation, exploratory laparotomy, application of external fixator for fracture, etc. in emergency operation theatre (Table-5).

Table 1: Age distribution (n=4680)

Age group	=n	%age
Upto 20	520	11.11
21-30	1808	38.63
31-40	1575	33.65
41-50	537	11.47
50- onwards	240	5.14

Minimum age (years) 01, Maximum age (years) 78

Table-2: Cause of trauma and sex distribution

Cause of Trauma	=n	Males	Females
Road Side Accident	2820	2254	566
Industry Hazard	436	412	24
House hold	732	245	487
Homicidal	63	53	10
Miscellaneous	629	328	301
Total	4680	3292	1388

Male : Female = 2.37 : 1

Table 3: Types of trauma

Type of Trauma	=n	%age	95% C I
Blunt	1404	30.0	28.6-31.33
Penetrating firearm	134	2.86	2.41-3.40
Penetrating sharps	2433	51.99	50.54-53.42
Crush	709	15.15	14.14-16.2
	4680	100 %	

Table-4: Main area of the body injured

Main injured area	=n	%age	95% C I
Head & neck	832	17.78	16.69-18.91
Chest	671	14.34	13.35-15.38
Abdomen	805	17.20	16.13-18.31
Upper limb	1201	25.66	24.42-26.94
Lower limb	1121	23.95	22.74-25.2
Perineum	50	1.07	0.80-1.41
Total	4680	100	

Table-5: Surgery Needed For Patients (n=4680)

Surgery type	Minor Surgery	Major Surgery	None
No. of patients	3340	872	468
Percentage	71.36%	18.64%	10%

Discussion:

Most of the accidents occur in the age group of 16-45 years of population. This results in the double loss to the country. Firstly expenditure is incurred in the treatment of these victims and secondly being the most productive age group, it results in huge productive working hours loss. Earlier studies have also reported a higher incidence of road traffic accidents in similar age groups^{4,5,6,7}. The higher incidence of accidents in these age groups can be attributed

to the risk taking behavior of youths. In our society as males are the bread earners for the family and therefore involved usually in outdoor activities exposing themselves to accidents. Frank et al also observed a higher male: female ratio⁸.

A recognition of the typical pattern of injury coupled with a logical sequence for the initial assessment and management of trauma patients will contribute to reductions in mortality and morbidity; however, the most significant impact on reducing the worldwide burden of motor vehicle-related trauma will come from injury prevention programmes organized at community and governmental levels. Injury prevention aims to prevent injury from occurring in the first place. Such prevention can be educational such as anti drink driving campaigns, or legislative such as enforcement of speed limits. Secondary injury prevention attempts to lessen the consequences of injury for example placement of air bags in cars. Tertiary injury prevention is done by health care delivery system.

In India, over 80,000 persons die in the traffic crashes annually, over 1.2 million are injured seriously and about 300000 disabled permanently. In India, for individuals more than 40 years of age, more life years are lost due to traffic crashes than due to cardiovascular diseases or neoplasms^{9,10}.

In this study most of the patients suffered from upper limb injury. This is because the cases were taken whether they got injury at home or in road traffic accident. In an Indian study about road traffic accidents only, the region mostly affected by injury was lower extremity in 192 (45.39%) cases¹¹.

In our study 671(14.34 %) patients got chest injury. Blunt chest trauma is not usually associated with military or civilian violence, while penetrating chest trauma often is. Penetrating chest trauma is frequently caused by gunshots and non gunshot-related incidents such as stabs, traffic accidents, and impalements¹².

Abdominal trauma accounts for 805 patients in our study. Real concern for surgeon is to identify the intraabdominal injury in blunt trauma. The most commonly injured intraabdominal organ following blunt trauma is the spleen. The reported incidence of bowel and mesenteric injuries after blunt abdominal trauma is approximately 1.3%¹³. The most pressing concern for surgeons treating blunt abdominal injury is occult hollow viscous injury (i.e. injury that occurs and is clinically silent). As a result of the correlation with specific injury patterns, the preceding mechanism of accident should be exactly documented and considered by the physician during the early phase of resuscitation¹⁴.

Conclusion:

Trauma is a leading cause of morbidity and mortality among all age groups. Most of the trauma victims receiving minor injuries can be treated at primary health care centers. This can decrease the load of tertiary care

hospitals. Optimal care of severely injured patients requires a coordinated approach in the healthcare delivery system. Although sophisticated prehospital and trauma centre systems have been shown to reduce the number of preventable deaths after trauma¹⁵, maximum impact in reducing the burden of trauma must come from injury prevention strategies.

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