

ORIGINAL ARTICLE

Patterns and Outcomes of Patients with Abdominal Trauma

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ABSTRACT

Aim: To determine the patterns and outcomes of patients with abdominal trauma.**Study Design:** Prospective cross sectional study**Place and duration of study:** Department of Surgery, DHQ Hospital Abbottabad from 1st June 2016 to 30th June 2021.**Methodology:** One hundred and twenty three abdominal trauma male and female patients having age between 18-45 years. Patients with conservative management and failing to provide history of trauma were excluded from the study. We studied the patterns of abdominal trauma and its outcomes in terms of surgical site infection, anemia, mortality and hospital stay.**Results:** Majority of the patients were male as compared to females (83.7% vs 16.3%). The most effected age group was 21 to 40 years (56.9%). Road traffic accident was the major cause of injury (59.3%). The most common pattern of injury was blunt force trauma (77.2%). Majority of the patients had < 10 days of hospital stay. Surgical site infection was the most common postoperative complication (36.6%). Mortality rate was 11.4%.**Conclusion:** Blunt force trauma was the most common pattern of injury. Young patients (21-40 years) were more prone to abdominal injuries. Surgical site infection seems to be the most common postoperative complication.**Key words:** Abdominal trauma, Pattern, Outcome, Blunt force trauma

INTRODUCTION

In younger communities around the globe, trauma is indeed the primary risk factor for mortality. Trauma management in poor countries is highly problematic^{1,2}. Poor infrastructure has been connected to the apparent steady increase in injuries. Although most localities lack well-established emergency services, the situation is further compounded by underfunded and inadequate emergency systems to treat victims. An abdominal trauma suspect's result turns devastating in this situation³.

Each year, approximately 5.1 million people worldwide die as an outcome of injury. Males contribute to more than two-thirds of these cases, with far more than half of them observed in men between the age ranges of 10 to 24 years. Thus according to a report by the World Health Organization, trauma contributes to 6% of all mortalities in high-income regions. In low-income regions such as Southeast Asia, these injuries are associated with nearly 12% of all deaths⁴.

A study reported abdominal injuries are estimated to be 15% among hospitalized patients who needed surgery for which appropriate triaging is required for appropriate management.⁵ The most typical abdominal injuries are penetrating and blunt, as well as the most frequently affected organs, are the spleen, liver, stomach, and liver while the diaphragm and kidneys are reported to be the least frequently affected organs⁶⁻⁸.

Trauma management in poor countries is highly problematic. Poor infrastructure has been connected to the apparent steady increase in injuries. Although most localities lack well-established emergency services, the situation is further compounded by underfunded and inadequate emergency systems to treat victims. An abdominal trauma suspect's result turns devastating in this situation.⁹ Because of the expensive trauma care facilities with inter-professional collaboration caring for the victims in developed nations, trauma sufferers experience satisfactory outcomes. Policies to mitigate the likelihood of trauma have only gradually been implemented¹⁰.

Regardless of the fact that traumas are one of the major causes of morbidity and mortality in undeveloped nations, minimal consideration has been devoted to strategies intended to prevent traumas and patient management. The objective of the study is to determine the patterns and outcomes of abdominal trauma patients. The results of this research will assist medical professionals in understanding the risk associated with these traumas and to adopt efficient management techniques.

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MATERIALS AND METHODS

This prospective observation study was conducted in Emergency and Trauma Center at Dept. of Surgery, DHQ Hospital Abbottabad after IRB permission. A total of 123 patients were enrolled. The sample size was based on using anticipated frequency of mortality 13.2%¹¹, 6% absolute precision and 95% Confidence Interval. We included patients presenting with abdominal trauma undergoing surgical management. Both genders in the age range of 18 to 45 were included. Patients who treated with conservative management, failing to provide written consent and without proper history of abdominal trauma were excluded.

Patients were managed surgically by expert surgeons according to the guidelines of American Heart Association's Advanced Trauma Life Support. Patients were shifted from operation theatre to Intensive Care Unit for further management and care. Basic demographics and baselines characteristics like gender, age, education level and cause of trauma was recorded.

Outcomes were assessed in terms of postoperative complications (Surgical Site Infection SSI and anaemia), length of hospital stay and mortality. Data was analyzed using SPSS-20.

RESULTS

The mean age of the patients was 31.47±9.22 years. Majority of the patients were in the age group of 21 to 30 years which accounted for 70(56.96%) of the patients. 33(26.8%) patients were above the age of 40. Majority of the patients were males 103(83.7%). 63(51.2%) patients had primary education while 48(39%) were uneducated. RTA was the major cause of abdominal trauma accounting for 59.3% of total cases (Table 1).

Table 1: Demographic information of the patients (n=123)

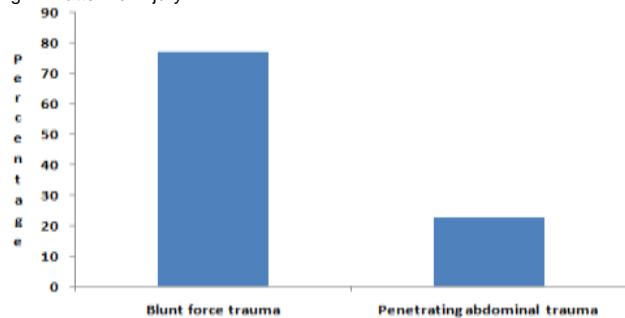
Variable	No.	%
Male	103	83.7
Female	20	16.3
18-20 years of age	20	16.3
21-40 years of age	70	56.9
> 40 years of age	33	26.8
Education Level		
Uneducated	48	39.0
Primary	63	51.2
Secondary	12	9.8
Cause of Injury		
RTA	73	59.3
Fall	39	31.7
Gunshot	11	8.9

Blunt force trauma was the common pattern of injury observed in our study accounting for 95 (77.2%) of the cases (Fig. 1). Seventy seven (62.6%) patients had hospital stay of less than 10 days. SSI was the most common postoperative complication, it was found in 45(36.6%) of the cases. Mortality rate was 14(11.4%) (Table 2).

Table 2: Frequency of pattern and outcome

Outcomes of abdominal trauma	No.	%
Hospital stay (days)		
< 10	77	62.6
> 10	46	37.4
Surgical Site Infection (SSI)	45	36.6
Anemia	30	24.4
Mortality		
Dead	14	11.4
Alive	109	88.6

Fig. 1: Pattern of injury



DISCUSSION

According to estimates, 8.1 million people will die each year as a result of injuries by 2020, and road traffic accidents (RTA) will be the third-leading cause of disability worldwide and the second-leading cause in developing nations¹¹. Trauma continues to be a major cause of emergency room visits around the world. Abdominal trauma is associated with a high rate of morbidity and mortality in trauma patients¹².

The common age of the patients was 21 to 40 years with a majority of males as compared to females in our study. Individuals in this age range are more involved in financial activities and employment, and their involvement in such incidents indicates a sustanial loss of production time.¹³ The number of female patients was less than males, this is due to the social fabric of our society. In our part of society males are the leading bread earners of their families, they are exposed to various road traffic hazards on daily basis.

The majority of the patients (51.2 %) had primary education. Because it concerns individuals in a financially active age group, this is a public health issue. Other research with similar findings indicated a link between this age group and substance abuse.¹⁴

The majority of patients in this study experienced blunt abdominal injuries which accounted for 77.2%, other investigations have found similar results.¹³ Penetrating damage was found to be the most common type of abdominal injury in various studies¹⁵, while in contrast to other studies in our study it was found to be 22.8%. The majority of patients in our study suffered blunt abdominal injuries as a result of RTAs, which occur as a result of the increasing number of automobiles on the road, poor road structure, and youngsters over speeding on their motorbikes. The most common cause of abdominal damage was RTAs. Other investigations¹⁶ came to similar conclusions. These findings are critical for the development of preventive methods to reduce RTAs and the resulting trauma.

In our study SSI was the most common post-operative complication. SSI was found in 36.6% of the patients. The second most prevalent post operative complication was anemia which was found in 24.4% of the patients. Our results are in agreement with

Ntundu et al¹¹, they reported SSI in 28% and anemia in 21% of their abdominal trauma patients.

According to our study hospital stay of less than 10 days was recorded in 62.6% patients and hospital stay of more than 10 days was recorded in 37.4% patients. Our findings are comparable with Chalya et al¹³, they reported a median length of hospital stay of 12 days among their 396 cases of abdominal trauma.

The mortality rate in our study was 11.4%, which was higher than in other studies. Various studies reported mortality rate between 7 to 40%. Other investigations found similar death rates of 17.1%¹³ and 15%¹⁶ Other studies reported a greater mortality rate of 25.8% due to higher proportion of comorbidities¹⁷. Other investigations⁸ found a decreased mortality rate of 4(4.7%).

CONCLUSION

The most common type of injury pattern in this study was blunt abdominal injury. The most common type of postoperative complication was SSI followed by anaemia. Majority of the abdominal trauma patients were in the younger age group; 21 to 40 years. We recommend collaboration between government and private/public health institutions to initiate a safety awareness companion in educational institutes and in local bodies. Further more effective trauma centers should be established where majority of people are deprived of trauma management facilities.

Conflict of interest: Nil

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