Pattern of Fatal IntraAbdominal Injuries in Autopsy Cases- A 3 Year Retrospective Study

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Abstract

Introduction- Abdominal trauma is an injury to abdomen and is a common presentation in the emergency room if it is caused by blunt force. According to WHO, in few years trauma will become the first or second leading cause of loss of productive years of life for both developed and developing countries. The most common cause of blunt abdominal trauma are road traffic accidents, fall from height, assaults, industrial accidents, etc.

Objective- To study the pattern and prevalence of abdominal injuries in relation to the various epidemiological factors.

Materials and Method- This retrospective study was conducted over a period of 3 years from January 2016 to December 2018. The total number of cases studied were 120 showing abdominal injuries. This study on medicolegal autopsies was carried out at mortuary of Jawaharlal Nehru Medical College, Belagavi, Karnataka.

Results- A total of 120 cases were included in this study who presented with blunt abdominal trauma. In our study males (83 cases) outnumbered females (37 cases) and majority of the cases were in age group of 21-30 years (38.3%). Most of the cases were from rural background (57.5%). Road traffic accidents (75.8%) were the most common reason behind the abdominal trauma. The most common cause of death was shock and haemorrhage (69.2%). Liver was involved in majority of the victims followed by spleen.

Keywords- *Abdominal injuries, Blunt trauma, Road Traffic Accidents*

Introduction

Abdominal trauma is an injury to abdomen and is a common presentation in the emergency room if it is caused by blunt force. The incidences of blunt abdominal trauma are increasing day by day due to the modern industrial era alongwith the development of automobiles. The trauma to abdomen usually occurs due to Road Traffic accidents, fall from height, assaults, industrial accidents, etc. Road Traffic Accident (RTA) is one among the top 5 causes of morbidity and mortality in South East Asian countries.[1] The fatality rate in road traffic accident in India is one of the highest in the world and reported to be 20 times more than that reported in developed countries.[2] The abdominal cavity contains the vital organs like liver, kidneys, spleen, stomach, small intestine, large intestine, etc and trauma to this region challenges the integrity as well as the viability of an individual. These injuries deserve more detailed thought process as many of these lesions are not immediately fatal and present difficult clinical problems for the surgeon to solve. The solid organs such as liver and spleen are more readily lacerated by blows as compared to hollow organs like stomach, intestine, etc. The most important reason for the increase in mortality and morbidity in such cases is either the delay in early diagnosis or misdiagnosis. The extent of blunt abdominal trauma is increasing at an

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alarming rate as increasing population is relying more on motor vehicles for the transportation. This study was conducted to study the pattern and frequency of intra abdominal injuries seen in autopsy cases with the blunt abdominal trauma.

Materials and Method

This retrospective study was conducted over a period of 3 years from January 2016 to December 2018. The total number of cases studied were 120 showing abdominal injuries. This study on medicolegal autopsies was carried out at mortuary of Jawaharlal Nehru Medical College, Belagavi, Karnataka. The study included data regarding age, gender, cause of accident, type of victim in road traffic accident, cause of death and incidence of visceral injuries of abdomen. All observations were recorded in specially designed proforma for study. Data was collected and then analyzed to determine the results. Statistical analysis was done by using SPSS software version 25 and the results were calculated in percentages.

Results

A total of 120 cases were included in this study who presented with blunt abdominal trauma. Since there is minimal bony protection for underlying organs, the abdomen is more vulnerable to fatal injuries. In our study males (83 cases) outnumbered females (37 cases) and majority of the cases were in age group of 21-30 years (38.3%) followed by 31-40 years (15.8%) as depicted in Table 1.

Table 1- Distribution of cases according to age and sex

Age Group	Males	Females	Total no. of cases	Percentage
0-10	1	1	2	1.7
11-20	7	4	11	9.2
21-30	34	12	46	38.3
31-40	11	8	19	15.8
41-50	12	6	18	15
51-60	13	4	17	14.2
61-70	3	1	4	3.3
>70	2	1	3	2.5
Total	83	37	120	100

Table 2- Distribution of cases according to Place of Residence

Place of Residence	Number of cases	Percentage
Rural	69	57.5
Urban	51	42.5
Total	120	100

As depicted by Table 2, the majority of cases were from rural background (69 cases, 57.5%) as compared to urban background (51 cases, 42.5%).

Table 3- Distribution of cases according to type of accident

Type of Accident	Number of cases	Percentage
Road Traffic Accidents	91	75.8
Fall from Height	18	15
Direct Impact of Blunt Object	6	5
Others	5	4.2
Total	120	100

According to Table 3, the most common reason behind the abdominal trauma was road traffic accidents (91 cases, 75.8%) followed by fall from height (18 cases, 15%). 6 cases (5%) were due to direct impact of blunt object over the abdomen.

Table 4- Distribution of cases according to type of victims in Road Traffic Accidents

Type of Victims in RTA	Number of cases	Percentage
Bike Rider	35	38.5
Pillion Rider	29	31.8
Pedestrian	12	13.2
Four wheeler	11	12.1
Cyclist	4	4.4
Total	91	100

As depicted in Table 4, the majority of the victims in Road Traffic Accidents were bike riders (35 cases, 38.5%) followed by 29 cases of pillion riders (31.8%) and 12 cases of pedestrian (13.2%). 11 cases (12.1%) were occupant of four wheeler while 4 victims (4.4%) were cyclist.

Table 5- Distribution of cases according to Cause of Death

Cause of Death	Number of Cases	Percentage
Shock and Haemorrhage	83	69.2
Septicaemia	37	30.8
Total	120	100

Shock and haemorrhage was the most common cause of death seen in 83 cases (69.2%) as compared to 37 cases of septicaemia (30.8%) as depicted in Table 5.

Table 6- Distribution of cases according to incidence of visceral injuries of abdomen

Visceral Injuries	Number of Cases	Percentage
Liver	21	17.5
Spleen	18	15
Kidney	15	12.5
Small Intestine	10	8.3
Stomach	5	4.2
Liver, Kidney	15	12.5
Liver, Spleen, Kidney	13	10.8
Liver, Spleen, Small Intestine	12	10
Spleen, Kidney	11	9.2
Total	120	100

As depicted in Table 6, Liver was involved in majority of the victims (61 cases) followed by spleen (54 cases). Kidney was involved in 54 cases as compared to 22 cases of small intestine. 5 cases of stomach injury were also reported.

Discussion

In our study, males (69.2%) predominated females (30.8%) which is similar to the studies conducted by Khajuria et al.[3] This could be due to the risk taking behavior of males and indulging in outdoor activities as they are the earning members of the family. This study has found that majority of the victims were in the age group 21-30 years (38.3%) followed by 31-40 years (15.8%) because of the fact that persons in this age groups have tendency to take unnecessary risk thereby subjecting themselves to danger of accidents and injuries. This observation is consistent with the studies conducted by Suresh et al.[4]

Most of the cases were from rural background (69 cases, 57.5%) as compared to urban background (51 cases, 42.5%) which is similar to the study conducted by Reddy et al.[5] This could be due to the reason of ignorance of road safety rules and traffic sense. In this study, the most common cause of abdominal trauma was road traffic accidents (91 cases, 75.8%) followed by fall from height (18 cases, 15%) which is consistent with the studies conducted by Panchal et al.[6] Among road traffic accidents, bike riders (38.5%) constituted maximum number of cases followed by pillion riders (31.8%). These results are similar to the studies conducted by Gupta et al[7] and Norton et al.[8]

The most common cause of death in our study was shock and haemorrhage (69.2%) which is similar to the studies conducted by Ravindra et al.[9] Liver was involved in majority of the victims (61 cases) followed by spleen (54 cases). Kidney was involved in 54 cases as compared to 22 cases of small intestine. This observation is consistent with the studies conducted by Bakkannavar et al[10] and Maurice et al.[11] Among solid organs, liver was most affected as it is more anteriorly placed and hence more susceptible to injury by blunt trauma.

Conclusion

In our study abdominal trauma is a major cause of mortality among young adult males of age group 21-30 years. Most of the cases were from rural background. Road Traffic Accidents were the most common cause of injuries followed by fall from height. Liver was involved in majority of the victims followed by spleen. The main cause of death was haemorrhagic shock due to multiple injuries. A thorough examination should be done in all road traffic accident cases as many of them show fatal visceral organ damage without external injury. In

order to help the authorities to plan better availability of health care on road, the offending agent in Road Traffic Accident should be identified. Awareness of road safety measures, proper attention towards accurate diagnosis and prompt treatment of the accident victim is the need of hour to bring down the mortality as well as the morbidity.

Ethical Clearance- Taken from Institutional Ethical Committee

Conflict of Interest- None

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