SJS SRIWIJAYA JOURNAL OF SURGERY

Sriwijaya Journal of Surgery Volume 4, Issue 1, Page No: 253 - 260
Available online: www.sriwijayasurgery.com
SJS 4(1): 253 - 260

# Characteristics of Patients with Abdominal Trauma from January 1st 2019 to December 31st 2019 at Dr. Mohammad Hoesin General Hospital

Muhammad Fikri Aulia[1*], Efman EU Manawan[2]

[1] Residence of Surgical, Faculty of Medicine, Universitas Sriwijaya, Palembang, Indonesia
[2] Lecture Staff, Faculty of Medicine, Universitas Sriwijaya/Digestive Surgeon of Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia

*Corresponding Author Email: efman.manawan@gmail.com

## Abstract

**Background:** Trauma is the main cause of death in the subgroup of patients under 40 years of age. The main cause of death. Abdominal trauma ranks third as a cause of death due to trauma after head and chest injuries. The classification of abdominal trauma based on the type of trauma is divided into two, namely sharp trauma and blunt trauma. The aim of this study is to investigate the characteristics of abdominal trauma patients at dr. Mohammad Hoesin Palembang General Hospital.

**Methods:** This research was a retrospective descriptive study. Using secondary data from the medical records of Mohammad Hoesin Hospital, Palembang. Performed in the from January 2019 to December 2019. Samples inculded were all patients diagnosed with abdominal trauma, underwent laparotomy, and hospitalized in digestive surgery wards.

**Results:** There were 33 subjects participated who met study critera. The highest age group for abdominal trauma was at the age group 26-45 years as many as 16 people. Abdominal trauma patients were mostly found in the male, with 32 people (97%). Based on their causes of abdominal trauma, most of them were caused by stab wounds as many as 16 people (48.5%). In abdominal trauma patients based on the type of trauma, most of them occurred due to sharp trauma, with 23 people (69.7%). The organs most frequently injured due to abdominal trauma were the small intestine and large intestine, with 14

people (42.4%). The length of stay of patients with abdominal trauma varies from 1 day to 22 days, with the most length of stay between 0-7 days as many as 20 cases (60.6%).

**Conclusion:** Male patients, aged 26–45-year-old, caused by stab wound, sharp trauma, affecting small and large intestine, and hospitalized up to 7 days are the most common characteristic of patients diagnosed with abdominal trauma.

**Keyword:** abdominal trauma, laparotomy, digestive surgery, characteristics

## 1. Introduction

Trauma is the third most common cause of death in the general population after cardiovascular disease and cancer. Trauma is the main cause of death in the subgroup of patients under 40 years of age.[1] Trauma is the fourth leading cause of death in Indonesia, but in the 15–25-year age group, it is the main cause of death.[2] Traffic accidents are one of the five causes of mortality and mortality in Southeast Asian countries.[3]

Abdominal trauma, which is a fairly common cause of death, occurred in about 7 - 10% of trauma patients.[4] Abdominal trauma ranks third as a cause of death due to trauma after head and chest injuries.[5] Abdominal trauma is a significant cause of morbidity. and mortality in the United States.[6] In Europe, blunt-force abdominal trauma is frequent, accounting for 80% of all abdominal trauma. In three out of four patients with blunt-force abdominal trauma, traffic accidents are the most common etiology and often found in multiple trauma patients, followed by falling as the second most common cause.[1] Based on data from RSUP Dr. RD Kandou Manado in 2013-2015 abdominal trauma ranks 4th with the largest percentage being the head, extremity, and thoracic trauma respectively.[7]

The classification of abdominal trauma based on the type of trauma is divided into two, namely sharp trauma (penetrating) and blunt trauma (blunt trauma). The incidence of blunt abdominal trauma accounts for about 80% of all abdominal trauma.[8] In blunt trauma, the spleen and liver are the most commonly injured organs.[9] Blunt abdominal trauma is common as a result of road traffic accidents or falls, whereas sharp abdominal trauma can be caused by gunshot or sharp weapon thrust. Sharp abdominal trauma can be easily diagnosed and treated appropriately, while blunt trauma is difficult to diagnose, and is often diagnosed delayed because of late-onset of signs and symptoms. Bluntforce

abdominal trauma is very common in rural areas, while sharp abdominal trauma is more common in urban areas.[10]

Abdominal trauma management requires a multidisciplinary approach. Initial management includes rapid resuscitation with fluids or blood products, assessing all existing injuries, and making a decision whether surgery is needed or not. Laparotomy is acknowledged in patients with life-threatening injuries to control bleeding and sepsis. Meanwhile, non-operative measures, particularly observation, can be carried out in hemodynamically stable patients who are not accompanied with signs of internal bleeding or infection of the abdominal wall (peritonitis).[11]

Based on the description above, the researchers are interested in investigating the characteristics of abdominal trauma patients at dr. Mohammad Hoesin Palembang General Hospital from January 2019- December 2019.

## 2. Method

The design is cross-sectional descriptive study, using secondary data from the medical records of Mohammad Hoesin Hospital, Palembang. The study was conducted in the medical record department of dr. Mohammad Hoesin Palembang between period of January 2019 - December 2019. The study samples were all patients diagnosed with abdominal trauma and treated in digestive surgery inpatient ward at dr. Mohammad Hoesin Palembang between the time frame. Patients with incomplete medical record data, not underwent hospitalization, and not underwent laparotomy were excluded. Variables researched were age, gender, cause of event, type of trauma, organs affected, and length of care. The data that has been collected will be processed in statistical form using the SPSS program.

## 3. Results

This research was a retrospective descriptive study. The data used are secondary data obtained from medical records and polyclinic data. In that time span, there were 33 patients who experienced abdominal trauma with complete data.

**Table 1.** Age distribution among subjects

| Group | Age (y.o.) | n | Percentage (%) |
|---|---|---|---|
| Children | 0-11 | 3 | 9.1 |
| Teenager | 12-25 | 11 | 33.3 |
| Adult | 26 - 45 | 16 | 48.5 |
| Middle-age | 46 - 65 | 2 | 6.1 |
| Elderly | > 65 | 1 | 3 |
| | Total | 33 | 100.0 |

Distribution of age among subjects can be seen in Tabel 1. The highest age group for abdominal trauma patients was adults (26-45 years), as many as 16 people (48.5%) followed by adolescents (12-25 years), namely 12 people (33.3%), children (0-11 years). as many as 3 people (9.1%) and the elderly (46-65 years) as many as 2 people (6.1%). The lowest group reported was the elderly (> 65 years) with 1 patient.

**Table 2.** Age distribution among subjects

| Sex | n | Percentage (%) |
|---|---|---|
| Male | 32 | 97 |
| Female | 1 | 3 |
| Total | 33 | 100.0 |

Distribution of sex among subjects can be seen in Tabel 2. Of the 33 cases of abdominal trauma that received treatment, there were 32 male patients with abdominal trauma and 1 female.

**Table 3.** Cause of trauma distribution among subjects

| Cause of event | N | Percentage (%) |
|---|---|---|
| Stabbing | 16 | 48.5 |
| Traffic accident | 11 | 33.3 |
| Gunshot | 3 | 9.1 |
| Crushed | 2 | 6.1 |
| Falling | 1 | 3 |
| Total | 33 | 100.0 |

Distribution of cause of trauma among subjects can be seen in Tabel 3. The most common cause of abdominal trauma was stab wounds, which were 16 people (48.5%), followed by traffic accidents as many as 11 people (33.3%), gunshot wounds of 3 people (9.1%) were hit by heavy equipment 2 people (6.1%) and fell. 1 person (3%).

**Table 4.** Types of abdominal trauma distribution among subjects

| Type of trauma | N | Persentase (%) |
|---|---|---|
| Sharp trauma | 23 | 69.7 |
| Blunt trauma | 10 | 30.3 |
| Total | 33 | 100.0 |

Most types of abdominal trauma were sharp abdominal trauma, namely 23 people (69.7%) followed by blunt-force abdominal trauma as many as 10 people (30.3%). Distribution of age among subjects can be seen in Tabel 4.

**Table 5.** Distribution of organs affected in abdominal trauma among subjects

| Affected organ(s) | N | Percentage (%) |
|---|---|---|
| Jejunum and mesentery arteries | 4 | 12.2 |
| Jejunum | | |
| Colon and kidney | 2 | 6.1 |
| Ileum and omentum | 3 | 9.1 |
| Jejunoileal, stomach, kidney | 1 | 3 |
| Jejunum, hepar, stomach | | |
| Jejunum, colon, mesentery arteries | 1 | 3 |
| Colon and mesentery arteries | | |
| Hepar | 1 | 3 |
| Hepar, kidney, bladder | | |
| Bladder | 1 | 3 |
| Lymph | | |
| Stomach | 1 | 3 |
| Stomach | | |
| and omentum | 4 | 12.2 |
| Stomach | 1 | 3 |
| and pancreas | | |
| Omentum | 2 | 6.1 |
| Mesentery arteries | 3 | 9.1 |
| Retroperitoneal hematom | 2 | 6.1 |
| | 1 | 3 |
| | 1 | 3 |
| | 3 | 9.1 |
| | 1 | 3 |
| | 1 | 3 |
| Total | 33 | 100 |

Distribution of organs affected among subjects can be seen in Tabel 5. The small intestine and large intestine were the organs with the most injuries, with 14 cases (42.4%), followed by mesentery vessels with 7 cases (21.2%), liver with 6 cases (18.2%), gastric with 6 cases (18.2%), kidney with 5 cases (15.2%), omentum 5 cases (15.2%) spleen 3 cases (9.1%), bladder with 3 cases (9.1%) retroperitoneal hematoma with 1 case (3%) and bladder with 1 case (3%).

Of the 33 cases of abdominal trauma who treated at the General Hospital for the period of January 1, 2019 to December 31, 2019, the length of stay varied from 1 day to 22 days with a median of 7 days. With a percentage of 0-7 days 20 cases (60.6%), 8-14 days 9 cases (27.3%), 15-21 days 3 cases (9.1%), 22-28 days 1 case (3% ). Distribution of length of hospital care among subjects can be seen in Tabel 6.

**Table 6.** Distribution of length of stay among subjects

| Length of stay | n | Percentage (%) |
|---|---|---|
| 0-7 days | 20 | 60.6 |
| 8-14 days | 9 | 27.3 |
| 15-21 days | 3 | 9.1 |
| 22-28 days | 1 | 3 |
| Total | 33 | 100.0 |

## 4. Discussion

The study revealed that the most common age group diagnosed with abdominal trauma was 26-45 years old. The results were in accordance with the research of Sanjay et al[10], which states that abdominal trauma generally occurs in the age range of 21-40 years, also Rastogi et al also stated that abdominal trauma occurs mostly in the age range 18-45 years. Egenti et al also stated that abdominal trauma was common in the age range of 20-29 years. This is because the population with an age range of 21-40 years generally often travel from one place to another for socioeconomic needs or family needs.[12]

Male patients were the most common diagnosed with abdominal trauma in RSUP dr Moh Hoesin Palembang. The findings were consistent with the research by Ginting et al., Sanjay et al, and Egenti el al, which all stated that the most cases of abdominal trauma occur in males. This is because men are a more active and productive population outdoors and travel using motorized vehicles so they are more prone to injury, besides that men are more associated with fighting / violence than women. [10,12,14]

This study found that stabbing was the most common cause of abdominal trauma. The results of this study were quite contrast with the research of Sanjay et al in India, that the highest cause of abdominal trauma is traffic accidents.[10] Similar results are also presented by Ginting et al[14], and Egenti et al[12] that traffic accidents are the most common cause of abdominal trauma.

Penetrating or sharp trauma was the most common type of abdominal trauma found in our subjects. The results of this study were in line with the study by Egenti et al.[12] that in Northeast Nigeria, sharp trauma is the most common type of abdominal trauma. However, our finding was different from the results of the study by Abigail[15] and Ginting et al[14] which said that blunt-force trauma is the most common type of trauma. This can be due to differences in tradition, social and ethnicity in each region.[13]

Our subjects were mostly affected on their small and large intestines by abdominal trauma. The results were consistent with the research of Asuquo et al[13], namely the abdominal organ with the most injury was the small intestine. However, it is different from Abigail's study[15] where the most injured organ was the stomach. Different results were also obtained in the study of Ginting et al[13] where the most organ injured was the liver.

## 5. Conclusion

The highest age group for abdominal trauma was at the age group 26-45 years as many as 16 people. Abdominal trauma patients were mostly found in the male sex as many as 32 people (97%). Based on the factors causing the abdominal trauma, most of them were caused by stab wounds (48.5%). In abdominal trauma patients based on the type of trauma, most of them occurred due to sharp trauma (69.7%). The organs most frequently injured due to abdominal trauma were the small intestine and large intestine (42.4%). The length of stay of patients with abdominal trauma varies from 1 day to 22 days, with the most length of stay between 0-7 days (60.6%).

## 6. References

1. Guillon, F. (2011). Epidemiology of Abdominal Trauma. CT of the Acute Abdomen. Medical Radiology. Diagnostic Imaging. Berlin: Springer-Verlag p.15-26
2. Butcher N, Balogh ZJ. The Definition of Polytrauma: the need for international consensus. [serial online] diunduh tanggal 20 oktober 2015. Tersedia dari: URL: HYPERLINK: www.elsevier.com
3. World Health Organization (2012). Guidlines for essential trauma care

4. Costa, G., Tierno, S.M., Tomassini, F., Venturini, L., Frezza, B., Cancrini, G., Stella, F. (2010). The epidemiology and clinical evaluation of abdominal trauma. Ann. Ital Chir, 81, 95-102
5. Kolegium Ilmu Bedah Indonesia & Komisi Trauma Perhimpunan Dokter Spesialis Bedah Indonesia. Trauma tumpul abdomen, trauma tajam abdomen. In: Definitive Surgical Trauma Care. Indonesia, 2003.
6. Johnson DJ, Culliane DC. Abdominal Trauma. In: Kelly KA, Sarr MG, Hinder RA, editors. Mayo Clinic Gastrointestinal Surgery. Philadelphia: Saunders, 2004.
7. Anugrah, dkk. 2016. Patterns of trauma patients in the surgical emergency department RSUP Prof. Dr. R. D. Kandou manado from January 2013 to December 2015
8. Jansen, J. O., Yule, S. R. and Loudon, M. A. (2008) 'Investigation of blunt abdominal trauma', BMJ (Clinical research ed), 336(7650), pp. 938–942. doi: 0.1136/bmj.39534.686192.80.
9. Van der Vlies, C. H., Olthof, D. C., Gaakeer, M., Ponsen, K. J., van Delden, O. M. and Goslings, J. C. (2011) 'Changing patterns in diagnostic strategies and the treatment of blunt injury to solid abdominal organs.', International journal of emergency medicine. Springer Open Ltd, 4(1), p. 47. doi: 10.1186/1865-1380-4-47.
10. Sanjay Anarase, Yogita Sanjay Anarase. Clinical Profile of traumatic abdominal injuries: Cross sectional study at tertiary care center. MedPulse International Journal of Surgery. July 2019; 11(1): 35-37.
11. Gamanagatti S, Rangarajan K, Kumar A, Jineesh. Blunt abdominal trauma: imaging and intervention. Curr Probl Diagn Radiol. 2015;44:321-36.
12. Egenti, Bibiana. (2015). Profile of Abdominal Trauma In Federal Teaching Hospital, Gombe, North-East, Nigeria: A Cross Sectional Study. International Journal of Innovative Medicine and Health Science. 41 - 45
13. Asuquo, Maurice & Bassey, Okon & Etiuma, Anietimfon & Ugare, Gabriel & Ngim, Ogbu. (2009). A Prospective Study of Penetrating Abdominal Trauma at the University of Calabar Teaching Hospital, Calabar, Southern Nigeria. European Journal of Trauma and Emergency Surgery. 35. 277-280.
14. Ginting, E. B., Sitohang, R. and Simanjuntak, S. (2015) 'Gambaran Trauma Abdomen yang Dirawat Inap di RSUD Dr. Pirngadi Medan pada Tahun 2012-2015', pp. 2015–2018
15. Abigail, A. 2015. Description of the characteristics of Abdomen Trauma at the General Hospital of the Adam Malik Haj Center, 2011-2014. FK USU. Field.