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PRESENTATION AND CURRENT MANAGEMENT OF LIVER INJURIES PATIENT IN A TERTIARY CARE HOSPITAL

Surgery

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ABSTRACT

Liver injuries occur as a result of blunt or penetrating abdominal injury. The liver is the most commonly injured organ in abdominal trauma.
Aim and Objective: To study the presentation and current management of liver injuries patient in a tertiary care hospital over three year's period.
Type of study: descriptive epidemiology Patients and methods: The patients with a diagnosis of liver injuries were admitted and managed in our hospital between 2014 to 2018 retrospectively. The patient were analysed with age, sex, aeitiology of injuries, management, mortality and morbidity.
Results: Out of 56 patients 42 (75%) were male and 14 (25%) were female. The male: female ratio was (3:1).The age of the patients ranged between 22 to 60 years with mean age of 38.45±8.75 years. RTA being most common types of modes of injuries and younger population are most vulnerable for liver injuries. Associated organ injuries observed in our study were,spleen(35%),thorax(38%) and long bone(12%).majority of patient were having Grade I,II and III liver injuries. (28.57%,20.42% and 32.12%) respectively.No patient with Grade V and VI liver inuries were found in our study.In our study peritoneal lavage and hemostatic agents was the commonest procedure performed.
Conclusion: Liver injuries remain a prime cause for hospitalisation in emergency. It is also one of the major causes for mortality and morbidity and long stay hospitalisation. Liver injuries predominantly affect the younger population and road traffic accident remain prime cause .Grade I ,II were successfully managed with peritoneal lavage and hemostatic agents.

KEYWORDS

Liver trauma, surgical treatment, damage control surgery

INTRODUCTION:

The liver is the most frequently injured organ in blunt abdominal trauma(1,2).Incidence of blunt abdominal injuries leading to liver trauma is on increase in developing nation(3).This leads to increase mortality.Their mortality depends on grade of liver injuries and associated organ injuries.Managment of liver trauma in emergency has been more conservative after laparotomy like lavage,ligation of bleeders(i.e. cautery,harmonic),then hepatectomy.Managment of liver injury has changed to non operative treatmet to hepatic resection over last three decades.Perihepatic packing procedure,which is basic damaged control technique for the treatment of hepatic haemorrhage,is one of the cornerstone of the surgical interventions.(4)
The majority of patients admitted for liver injuries have grade I,II,or III and successfully treated with non operative management(NOM).Almost two-third of grade iv or v require operative management(OM)( ).The management of liver trauma has markedly changed in last three decades with significant improvement in outcome, especially in blunt trauma,owing to better critical care,damage control control planning,antibiotics,blood transfusions and diagnostic and therapeutic tools.(5-11)
This study aimed at presentation and current management in a tertiary care hospital to analyse the outcomes of different grading of liver trauma.

PATIENTS AND METHODS:

Retrospective study was carried out in 56 patients with blunt abdomen trauma associated radiological findings suggestive of liver trauma between march 2015 to march 2018.Initial assessment and resuscitation was done in emergency room. The study included all adult patients of either gender who presented with liver trauma and underwent operative management. The study excluded those patients who were managed conservatively. As the study was observational one and did not involve any fresh intervention. We correlate the grading of liver injuries according to American associated for the surgery of trauma(AAST) classification (Table-1) and plan OM,according to WSES classification,Table-2Patient with hemodynamic instability was treated with OM.Even grade I,II or minor lesion according to WSES classification with hemodynamic instability were treated with OM.Patients were resuscitated and OT was planned for exploratory laparotomy.Necessary materials like,haemostatic agents,sutures,periheaptic packing and ligature material were arranged. The patients were ensure to prevent hypothermia,coagulopathy and metabolic acidosis and shifted to ICU for post operative monitoring and correction. A drain was placed to monitor any discharge(i. e-blood,bile) and removal of pack if needed were undertaken after 48 to 72 hours.

The following data were collected ,age,sex,type and mechanism of injury,imageing findings,gradeing of liver injuries, abdominal and extra abdominal associated injury, detail of surgical intervention and outcomes. Statistical analyses were done with SPSS version 16.

Table-1 AAST grading

Grade	Grade
I	Hematoma subcapsular, non-expanding, < 10% of surface area Laceration capsular tear, non-bleeding, parenchymal depth < 1 cm
II	Hematoma subcapsular, non-expanding, 10-50% of surface area or intraparenchymal, non-expanding, < 2 cm in diameter Laceration capsular tear, active bleeding, parenchymal depth 1–3 cm, < 10 cm in length
III	Hematoma subcapsular, > 50% of surface area or expanding, ruptured subcapsular hematoma with active bleeding, intraparenchymal hematoma > 2 cm Laceration parenchymal depth > 3 cm
IV	Hematoma ruptured intra parenchymal hematoma with active bleeding Laceration parenchymal disruption of > 25-50% of hepatic lobe
V	Laceration parenchymal disruption of > 50% of hepatic lobe Vascular Juxtahepatic venous injuries
VI	Vascular hepatic avulsion

Table-2 WSES classification

Minor hepatic injuries:

- ***WSES grade I*** includes AAST grade I-II hemodynamically stable either blunt or penetrating lesions.

Moderate hepatic injuries:

- ***WSES grade II*** includes AAST grade III hemodynamically stable either blunt or penetrating lesions.

Severe hepatic injuries:

- ***WSES grade III*** includes AAST grade IV-VI hemodynamically stable either blunt or penetrating lesions.
- ***WSES grade IV*** includes AAST grade I-VI hemodynamically unstable either blunt or penetrating lesions.

Results:

Out of 56 patients 42 (75%)were male and 14 (25%) were female.The male:female ratio was(3:1).The age of the patients ranged between 22 to 60 years with mean age of 38.45±8.75 years.The mechanism of injuries shown in table:3

Table:3 Mechanism of injury

RTA	38	67.85%
Gunshot	07	12.5%
Stab	06	10.71%
Fall from height	05	8.92%

Associated organ injuries as shown in the table:4

Table:4 Associated intra abdominal Injuries

Spleen	35 (62.5%)
Kidney	6(10.71%)
Lung	20(35.71%)
Rib≠	18(32.14%)
Urinary bladder	4(7.14%)
Long bone	12(21.42%)
Duodenum &Pancrease	5(8.92%)
Diaphragm	2(3.57%)

There were 16(28.57%) patients with grade i injury,12(21.42%) with grade II injury,18(32.14%) with grade III injury, and 10(5.6%) with grade iv injury.There were no patients with grade V and VI injury.(Table:5)

Grade I	16	28.57%
GradeII	12	21.42%
GradeIII	18	32.14%
GradeIV	10	5.6%
Gradev	0	0
GradeVI	0	0

Table:6 Operative procedures (n-56)

Periheptic packing with temporary closure	6(8%)
Peritoneal lavage and hemostatic agents	38(60%)
Suture hepatorraphy alone	7(16%)
Suture hepatorraphy and abgel packing	3(8%)
Right hepatic artery ligation	2(8%)

In 25(44.64%) patients complications were encountered

Table:7 Post-operative complications (n-25)

Septicemia	15(60%)
Bile leak	4(16%)
Wound dehiscence	2(8%)
Haemorrage	2(8%)
Abscess	2(8%)

The hospital stay ranged from 8-15days with mean of 10.12±3.32 days.All patients were shifted to ICu for monitoring and necessary management with average stay of 3-15days.In this study the mortality was 10.715 (n-6).

DISCUSSION:

In the present study,more younger males were injured compared to female,because of their outdoor activities.Furthermore,blunt trauma(12,13) were more frequent then other mode of injuries and road traffic incident were the most common cause of liver trauma.

In present study majority of the patients presented with haemodynamic compromise and resuscitation were done in emergency room and planned for exploratory laparotomy.Most of the published literature had similar observations on the mode of presentation.(14).None of our patients had grade V or grade VI liver injury.(15,16).This because of high mortality rate and die on the scene or en route to hospital.Peritonial lavage and hemostatic agents constituted majority of the performed surgery.Gao et al and Hsu et al had similar experience in manageing grade I and II liver injuries(17,18).Suture hepatorraphy and perihepatic packing with temporary closure with good results were observed in our study.Similar finding were encountered (19,20).

COCLUSION:

Liver injuries remain a prime cause for hospitalisation in emergency. It is also one of the major causes for mortality and morbidity and long stay hospitalisation. Liver injuries predominantly affect the younger population and road traffic accident remain prime cause .Grade I ,II were successfully managed with peritoneal lavage and hemostatic agents

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