

Blunt Abdominal Trauma Scoring System (BATSS) Versus Fast in Assessment of Blunt Trauma Abdomen: An Observational Study

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Abstract: ***Introduction:** Abdominal trauma can be due to either penetrating or blunt force with the later comprising of 80% of all. BATSS is a 24 point scoring system based on 7 variables combining clinical findings and investigations to diagnose intra abdominal injuries and decide on further management. **Objective:** To compare the sensitivity and specificity of BATSS and FAST blunt abdominal trauma patients with CECT as gold standard. **Methodology:** This was a prospective observational study conducted in surgery department of Mathura Das Medical College and Mahatma Gandhi Hospital attached to Dr. S.N. Medical College, Jodhpur on 100 patients with blunt abdominal trauma in 2023-24 **Results:** FAST has a lower specificity as compared to BATSS leading to a large number of false positive results. Male are more prone to trauma with a ratio of 11:1. BATSS with a good sensitivity can be used a method of triage in trauma as well as an indicator for referral of high risk patients in resource poor areas*

Keywords: trauma, BATSS, FAST, blunt abdominal trauma

1. Introduction

Blunt abdominal trauma is common in the emergency department with 25% of patients requiring surgical abdominal exploration¹. The absence of historical data, as well as the existence of other injuries in polytrauma patients, poor GCS by head injury or intoxication makes the diagnosis difficult resulting in delay in treatment. Various scoring systems have been developed for objectively predicting the associated mortality and morbidity such as ISS (injury severity scoring), TRISS (trauma injury severity score) BATSS (blunt abdominal trauma scoring system) and CASS (clinical abdominal scoring system). This study was conducted in light of the growing number of patients, mostly as a result of traffic accidents to compare the findings of FAST and BATSS in diagnosing intra abdominal injuries and need for laparotomy.

2. Material and Methods

This was a prospective observational study conducted on 100 patients with blunt abdominal trauma in 2023-24. After patient reaches the trauma center with blunt abdominal trauma, patient's primary survey and management was done according to ATLS guidelines (cABCDE). Questionnaire was filled based on patient history, physical examination, ultrasound findings and completed after CT scan. FAST was positive when free fluid was noted and negative in absence of it. Depending upon the survey, patients were scored according to the 24 point blunt abdominal scoring system.

Variable	Value
Abdominal pain	2
Abdominal tenderness	3
Chest wall signs	1
Pelvic fracture	5
Fast scan	8
SBP <100 mmHg	4
Pulse rate >100 bpm	1

Findings of the above two were compared with the CT finding and sensitivity, specificity were calculated The data collected during the study was compiled using a Microsoft Excel spreadsheet and analyzed statistically using MedCalc software 22.00

3. Results

Table: Ultrasound Findings

EFAST	No. of patients	Percentage
Free Fluid	40	40.00
Liver laceration	9	9.00
Free air	4	4.00
Splenic laceration	4	4.00
Mesenteric haematoma	1	1.00
NAD	42	42.00
Total	100	100.00

Fast	Cect iai(+)	Cect iai(-)	Sensitivity	Specificity
Positive	34	21	91%	61%
Negative	3	39		

Batss	Cect iai(+)	Cect iai(-)	Sensitivity	Specificity
<12	2	71	90.48	89.87
≥12	19	8		

Fast	Batss<12	Batss>12
Positive	34	24
Negative	39	3

It included 100 patients with a male to female ratio of 11:1 and an average age of 38.34 years. Though physical injuries to the abdomen were prevalent, with 58% of patients being FAST positive however only 34% had intraabdominal injury, indicating that there was no significant link between the results of FAST and the results of abdominal scan or laparotomy. These findings suggest a rather modest FAST sensitivity. Different results from Boutros et al⁴⁰. (2015), who found that this examination had a sensitivity of 79-100 percent and a specificity of 95-100 percent, particularly in patients with unstable haemodynamics. . A total of 27 patients had a BATSS score of more than 12 out of which 19 underwent laparotomy. However out of the 73 patients with score less than 12, only 2 were in need of surgery. This shows that a lower score can very accurately rule out intra abdominal injury and thus preventing unnecessary CT scan or any other invasive investigations

4. Discussion

Abdomen, being the vast central portion, is the third most frequently injured region of body in trauma patients Abdominal trauma can be due to either penetrating or blunt force with the later comprising of 80% of all². The Blunt Abdominal Trauma Scoring System (BATSS), which has excellent sensitivity and specificity equivalent to CECT, has demonstrated that scores more than 12 are an exceptionally strong predictor of laparotomy. FAST on the other hand has a very high false positive rates The accuracy of FAST examination is most likely be impacted by the FAST operator's skill. In this situation, the operator was a first year radiology resident with limited expertise in interpreting FAST data. A BATSS score of less than 12 is related with no mortality, no need for laparotomy, and no need for further imaging following FAST.

Declarations

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