



ETIOLOGY, CLINICAL PROFILE, ASSESSMENT AND COMPARISON OF SCORING SYSTEMS IN PATIENTS DIAGNOSED WITH ACUTE PANCREATITIS IN A TERTIARY CARE CENTRE

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ABSTRACT **Background:** Acute pancreatitis is a sudden inflammation of the pancreas with an incidence 13–45 /1,00,000. A Bedside Index for Severity in Acute Pancreatitis (BISAP) has recently been proposed as an accurate and simple method for early identification of persistent organ failure and mortality. CT, as used to aid the diagnosis and staging of acute pancreatitis, has greatly improved and has changed the clinical management of this condition. **Methods:** 50 patients who came with acute abdomen and diagnosed with acute pancreatitis were selected satisfying inclusion and exclusion criteria. BISAP score and CT severity index was calculated and compared. Results: Out of 50 patients mild, moderate and severe acute pancreatitis was identified in 35, 9 and 6 patients respectively based on CT severity score index(CTSI). Out of 50 cases, 47 had BISAP score < 3 and 3 had >3. BISAP score as a predictor of prognosis has a significant relation as evident by the data in our study (p value<0.05). BISAP score and CTSI are used for severity assessment of acute pancreatitis, both these scoring systems showed positive correlation in assessing the severity. **Conclusion:** Early evaluation of the severity of acute pancreatitis is essential to allow the clinician to predict the patient's clinical course, estimate prognosis, and determine the need for admission to the intensive care unit. BISAP score is relatively simple & accurate in predicting the clinical severity of Acute Pancreatitis with a prognostic accuracy of BISAP similar to CTSI.

KEYWORDS : Acute pancreatitis, BISAP score, CT severity index

INTRODUCTION

Acute pancreatitis is a sudden inflammation of the pancreas. Incidence varies from 13 -45/1, 00,000 population world wide¹.

The incidence of acute pancreatitis (AP) has been rising. It is essential to establish an etiological diagnosis to reduce the morbidity and mortality of this disease.² A Bedside Index for Severity in Acute Pancreatitis (BISAP) has recently been proposed as an accurate and simple method for early identification of patients at risk of mortality. BISAP score was developed in 2008 and has been validated to assess the risk of in-hospital mortality in Acute pancreatitis and is a facile tool available for early prediction of persistent organ failure and mortality. CT, as used to aid the diagnosis and staging of acute pancreatitis, has greatly improved and has changed the clinical management of this condition.³

BISAP Score: This score has 5 parameters and assigns 1 point for each parameter: 1. BUN greater than 25 mg/dl. 2. Impaired mental status. 3. SIRS 4. Age more than 60 yrs. 5. Pleural effusion. BISAP score of 4 or 5 is associated with a 7 to 12 fold increased risk of developing organ failure.⁴

Grading of pancreatitis (Balthazar score)

- A: Normal pancreas: 0
- B: Enlargement of pancreas: 1
- C: Inflammatory changes in pancreas and peripancreatic fat: 2
- D: Ill-defined single peripancreatic fluid collection: 3
- E: Two or more poorly defined peripancreatic fluid collections: 4

Pancreatic necrosis

- 0 = Absence of necrosis
- 2 = Necrosis of up to 1/3% of pancreas
- 4 = Necrosis of 1/3 to 50%
- 6 = Necrosis of >50%

CTSI = Balthazar grade score plus necrosis score.

AIMS & OBJECTIVES:

1. To identify the etiological factors, clinical presentation of Acute pancreatitis
2. To assess & compare the scoring systems in the outcome

MATERIALS & METHODS

Study Area : This study was done in the department of general medicine at King George Hospital, Visakhapatnam. **Study Period :** This study was conducted from November 2021 to April 2022. **Study Design :** Cross sectional study. **Sample Size :** 50 patients with acute abdomen who came to the KGH, Visakhapatnam and are diagnosed as having acute pancreatitis. All patients were included in the study after obtaining a written informed consent.

INCLUSION CRITERIA

1. Patients with acute abdomen diagnosed as acute pancreatitis
2. Patients above 18 years of age
3. Patients with serum amylase and lipase elevated more than 3 times than that of the normal levels

EXCLUSION CRITERIA

1. Patients with other causes of acute abdomen like acute appendicitis, gastritis, cholecystitis, renal calculi, bowel perforation, myocardial infarction etc...
2. Patients below 18 years of age
3. Patients who have pancreatic calcifications on CT S/o chronic pancreatitis

RESULTS:

1. Age specific distribution

The mean age among acute pancreatitis patients was 38(+/-11) years. Majority of the patients were in the age group of 20 to 39 years consisting of 28 patients (56%).

2. Gender distribution

45 (90%) are males and 5 (10%) are females with M:F ratio of 9:1

3. Etiological factors:

Alcohol was identified as the most important etiologic factor associated with acute pancreatitis, accounting for 74%(37) of the cases. Gall stones(1 case) and drugs(3 cases) and history of cancer and abdominal surgery(1 case).

4. Presenting complaints and symptoms

Abdominal pain was the most common symptom at presentation in 49 (98%) cases.

5. Personal and Family history

42 of the study subjects were habituated to consume alcohol and smoking was present in 37 patients. None of the study subjects had a similar family history.

6. Vital data

The mean (±SD) systolic blood pressure was 120 (±20)mm of Hg. The mean (±SD) diastolic blood pressure was 78(±13)mm of Hg

7. Biochemical parameters

	Mean	Standard deviation	Minimum value	Maximum value
Serum amylase(U/L)	606.06	429.0897	200	2173
Serum lipase(U/L)	616.86	365.684	204	1628
RBS(mg/dL)	113	48.9	58	284
BUN(mg/dL)	18.25	20.16	9.33	149.8
S Creatinine(mg/dL)	1.3	2.1	0.4	14
TLC(cells/cumm)	8471	2036	4900	15200
TSB(mg/dL)	1.4	1.1	0.6	6.5
S Calcium(mg/dL)	8.724	0.856	6.4	11.7
S Triglycerides(mg/dL)	140	46.2	62	266

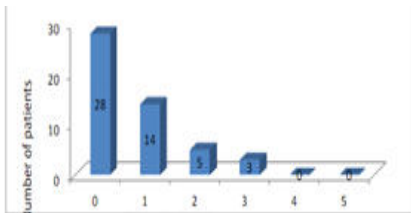
8. Ultrasonography findings

Ultrasonography findings	No. of Pts	Percentage
Poor window	9	18
Bulky pancreas	38	72
Altered echo texture	19	38
Peripancreatic inflammation	2	4
Fluid collection around pancreas	1	2
Ascites	15	30
Pleural effusion	4	8
hepatomegaly	4	8

9. CECT findings

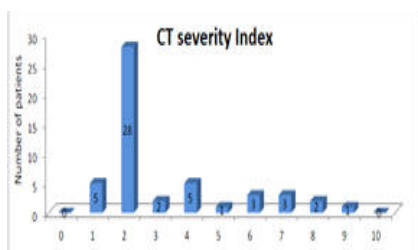
CECT findings	No. of pts	Percentage
Bulky pancreas	47	94
Peripancreatic inflammation/ peripancreatic fat stranding	43	86
1 Peripancreatic collection	5	10
>1 peripancreatic collections	3	6
Pancreatic necrosis	12	24
Portal vein thrombosis	2	4
Lymphadenopathy	3	6

10. BISAP scoring



A score of ≥ 3 was present in 3 (6%) of cases suggestive of severe acute pancreatitis and 47 (94%) patients had a score of < 3 suggestive of mild acute pancreatitis. Most of the patients [28 cases (56%)] had a score of 0.

11. CT Severity Index



Based on Balthazar's criteria and necrotic score the CT severity index was calculated. 35 patients (70%) were of mild severity with a score of 0 – 3, 9 (18%) patients were of moderate severity with a score of 4 – 6. 6 (12%) patients come under severe acute pancreatitis with a score of 7-10.

12. Outcome:



47 (94%) out of 50 patients were discharged and the remaining 3(6%)patients died within the first week of admission.

13. Comparison of BISAP score and outcome:

BISAP score predicting the outcome of acute pancreatitis.

BISAP score	Death	Discharge	Total
≥ 3	1	2	3
< 3	2	45	47
Total	3	47	50

$\chi^2 = 4.23$ $p = 0.03977$

BISAP score can be used for assessing the outcome of acute pancreatitis.

Out of 3 cases with BISAP score of ≥ 3 , 1 case died and 2 cases out of 45 patients with a BISAP score of < 3 . BISAP score as a predictor of prognosis in acute pancreatitis has a significant relation as evident by the data in our study ($p < 0.05$)

14. Comparison of CTSI and Outcome

CTSI	Death	Discharge	Total
Severe	2	3	5
Mild and Moderate	1	44	45
Total	3	47	50

$\chi^2 = 11.39$ $p = 0.0074$

Out of 5 patients with severe acute pancreatitis 2 cases died and 1 patient died of 45 cases who were diagnosed as having mild and moderate degree of acute pancreatitis. Our study reports that the predictive ability of CTSI is highly significant ($p < 0.001$).

15. Comparing BISAP and CTSI

CTSI	BISAP < 3	BISAP ≥ 3	TOTAL
0-3	34	1	35
4-6	9	0	9
7-10	4	2	6
TOTAL	47	3	50

BISAP score and CT severity index are used for severity assessment of acute pancreatitis in the present study both these two scoring systems show positive correlation in assessing the severity ($r = 1$ BISAP, 0.33 CTSI).

DISCUSSION

The observation of predominant age distribution between 20-39 years was consistent with other studies by Narender NRet.al.5 in which 62% of the cases belong to 21 to 40 years and in study by Vengada krishnan 49% cases in 21 to 40 yrs.6

Arun kumar Shirsetty 89.8% had a similar gender predominance.7 This may be due to greater prevalence of alcoholics among male population. Alcohol was the most common cause in the studies by Yadav8 and Gullo et al9

Arun kumar Shirsetty7 in his study reported nearly 100% presented with abdominal pain, similar to our study.

Manikkavasakar S et al in their article stated that MRI is a valuable alternative modality, with at least equal diagnostic performance to CT for the diagnosis and follow-up of acute and chronic pancreatitis9

This shows that the patients which were graded as severe Acute pancreatitis based on the BISAP score will likely have a severe degree of Acute pancreatitis as per the CTSI.

RECOMMENDATIONS

Hence in places where there are no facilities of CT scan, like rural areas , BISAP scoring can be used with equal efficacy in assessing the severity and for proper management of the patients.

CONCLUSIONS

Acute pancreatitis is more common in the age group 20-39 years. Disease is predominant in males (9:1 of male to female ratio) Pain abdomen was the most common presenting symptom Most common etiological factor is alcohol abuse Early evaluation of the severity of acute pancreatitis is essential, to allow the clinician to predict the patient's clinical course, estimate prognosis and determine the need for admission to the intensive care unit.

BISAP score is relatively simple & accurate in predicting the clinical severity of Acute Pancreatitis with a prognostic accuracy of BISAP similar to CTSI.

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