

# **RESEARCH ARTICLE**

## COMPARITIVE STUDY OF PANC-3 AND BEDSIDE INDEX FOR SEVERITY IN ACUTE PANCREATITIS (BISAP) SCORING SYSTEM TO IDENTIFY SEVERITY OF PANCREATITIS"

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Abstract

**Background & Objectives:** Objective of this study is to evaluate accuracy and predictability of PANC-3 over BISAP scoring system to predict severity in an attack of acute pancreatitis.

**Methods:** A total of 160 cases were enrolled in the study and was conducted in Department of General Surgery, ESICMC & PGIMSR, Bangalore. All patients with clinical diagnosis of acute pancreatitis will be included in the study. It was a prospective study with study period of 18 months.

**Results:** A total number of 160 patients were included in the study. Patients presenting with acute pancreatitis were maximum in age group of 31-40 years which included 60 patients (37.5). 153 (96%) patients were male and 4 percent (n=7) are female. Most common cause is alcohol- 124 (77.5%) patients. Next common cause is the gallstone 19 patients (11.9%). The most common chief complaint in our study was characteristic upper abdominal pain (100%) followed by vomiting (22.5%), fever (13.8%), jaundice (1.9%) and abdominal distension (1.3%). 91 patients were diagnosed to have mild acute pancreatitis, 37 patients with moderate acute pancreatitis and 32 patients with severe acute pancreatitis. All the 32 patients were correctly predicted by PANC-3 score. 11(6.9%) developed complications like pancreatic necrosis, pancreatic abscess, upper gastrointestinal bleeding, MODS, sepsis and death. 3 patients died due to complications associated with severe pancreatitis which accounts for 1.9%.

**Interpretation & Conclusion:** Our study shows that PANC-3 can be used to predict the severity of pancreatitis as efficiently as BISAP scoring. It uses only 3 criteria which are easily done and available in even the basic health care setup. The interpretation of PANC-3 does not need expertise and can be applied at the time of admission which is an advantage when compared to classical scoring systems.

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## Introduction:-

Acute pancreatitis is a common disorder with substantial burden on the healthcare system<sup>1</sup>. Acute pancreatitis includes wide spectrum of disease varying from mild self-limiting symptoms to fulminant multi organ failure and high mortality. Acute pancreatitis is defined as an acute condition presenting with abdominal pain, a threefold or

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greater rise in the serum levels of the pancreatic enzymes- amylase and lipase, and/or characteristic findings of pancreatic inflammation on ultrasound or contrast-enhanced  $CT^2$ . Based on severity, acute pancreatitis can be edematous, hemorrhagic and necrotizing<sup>3</sup>. Early identification of patients at risk of developing a severe attack has great importance for instituting therapeutic interventions and improved outcome. The course of the disease ranges from mild form to severe acute form. 10 to 20% of patients experience a severe attack of acute pancreatitis (SAP) and the overall mortality rate is 3-10%, where in 11-30% of cases with severe disease manifested as pancreatic necrosis. Accurate prediction of severity is important in order to improve survival. Most of these episodes are mild and spontaneously subsiding within 3 to 5 days. Current methods of stratification of risk factors in acute pancreatitis have much important limitations. An ideal prognostic method should be able to differentiate between patients with mild & severe disease, easy to use, widely available, should be accurate and should have low inter-observer variability<sup>3</sup>. It should also be able to apply early in disease process so that patient who were prone to develop potential complications will be closely monitored and treated empirically. Based on these problems a retrospective study done by Brown et al., in 2007 found out that combining parameters such as haematocrit, BMI and pleural effusion led to post-test likelihood of the disease to be 99%.<sup>1</sup> PANC-3 Scoring System is one of the better systems because the three criteria used are simple, easy to assess, readily available and economic<sup>1</sup>. PANC3 score is a costeffective, promising score that helps in predicting the severity of pancreatitis leading to prompt treatment and early referral to higher center.

PANC-3 involves simple parameters such as: 1) Hematocrit 2) Body Mass Index and 3) Chest X-ray<sup>2</sup>.

BISAP includes BUN, Impaired mental status (GCS<15), SIRS, Age>60yrs, Pleural effusion detected on chest X-ray<sup>4</sup>.

## **Objectives Of the Study:-**

To evaluate and assess the PANC-3 over BISAP scoring system with respect to:

- Accuracy
- Predictability
- Severity in an attack of acute pancreatitis

## Methodology:-

A prospective study was carried out in Department of General Surgery, ESICMC &PGIMSR, Rajajinagar, Bangalore from January 2020 to June 2021 on comparison of PANC-3 and Bedside Index for Severity in Acute Pancreatitis (BISAP) scoring system to identify severity of pancreatitis. All patients (males & females) with clinical diagnosis of acute pancreatitis will be included in the study.

Study Design:

Prospective Study

Study Period: 18 months from January 2020 to June 2021

## Place Of Study:

Department of General Surgery, ESICMC & PGIMSR, Rajajinagar, Bangalore-10

## Sample Size:

160 cases.

## Inclusion Criteria:

1.Patient willing to give informed consent.

- 2. Characteristic pain abdomen in the epigastric region.
- 3.Serum amylase and/or lipase levels 3 times the upper limit of normal.

4. Ultrasound of the abdomen demonstrating changes consistent with acute pancreatitis.

5. The patients who met the above criteria and had onset of pain <48 hrs would be included in the study.

#### **Exclusion Criteria**:

1.Patient not willing to give informed consent.

2. Acute on Chronic Pancreatitis.

3. Recurrent attacks of acute pancreatitis with the previous history of complications like pseudocyst.

4.Pancreatic abscess.

5.Patients who presented with organ failure at presentation or within 24hours are not included.

6.Patients with comorbid conditions like cardiac failure, liver failure and renal failure are excluded from the study.

## **Results:-**

This study was conducted in ESICMC & PGIMSR, Rajajinagar, Bangalore during the period of January 2020 to June 2021. 160 cases were included in our prospective study. Patient underwent clinical, biochemical and radiological investigations and PANC-3 and BISAP scoring system were applied. All data were analyzed with a statistical software package (SPSS, version 16.0 for windows). A 'p' value of <0.05 using a two-tailed test was taken as being of significance for all statistical tests.

#### 1) Age Distribution: Table-1

Age groups (years)	Number	Percentage (%)
21-30	16	10.0
31-40	60	37.5
41-50	58	36.3
51-60	26	16.3
Total	160	100

The above tabular column 1 gives the age distribution of the disease in the various age group. The age group of patients enrolled in this study ranges from 21 to 60 yrs. The peak incidence of the disease was noted in the 4th decade of life.

The total patients studied in this study were 160, of which the patients presenting with acute pancreatitis were maximum in age group of 31-40 years which included 60 patients (37.5%). Next comes the 41-50 years which included 58 patients (36.3%). Next comes the 51-60 which included 26 patients (16.3%) and at last the age group of 21-30 years which included 16 patients (10%).

#### 2) Gender Distribution: Table-2

Gender	Number	Percentage (%)
Male	153	95.6
Female	7	4.4
Total	160	100

The total patients studied in this study were 160, which comprises of 153 (95.6%) males and 7 (4.4%) females. In our population males are commonly affected than the female population. This factor has link with the etiology, in our population as alcohol is the common cause of the acute pancreatitis. Alcohol consumption is not prevalent in female population, so females are not commonly affected by acute pancreatitis.

Gender	Mean age	SD	Median	Minimum	Maximum
Male	41.5	8.4	41	24	58
Female	42.6	6.2	45	34	49

#### 3) Age And Gender Distribution: Table-3

The mean and standard deviation are 41.5+/-8.4 and median of 41 for males. The mean and standard deviation are 42.6+/-6.2 and median of 45 for females.

#### 4) Etiology: Table-4

In our area the most common cause is alcohol with number of patients who had alcoholic pancreatitis is 124 (77.5%). Next common cause is the gallstone. Number of patients who had gall stone pancreatitis is 19 (11.9%). On linking with the etiology with the gender incidence we could find out that the gall stone pancreatitis is more common in the females. Next common cause in our study was idiopathic where no cause could be found for pancreatitis which included 15 patients (9.4%). The other causes are drug induced (0.6%) and increase in triglycerides (0.6%).

Etiology	Number	Percentage
ALCOHOL	124	77.5
DRUG INDUCED	1	0.6
GSD	19	11.9
IDIOPATHIC	15	9.4
HYPER-TRIGLYCERIDEMIA	1	0.6
Total	160	100.0

#### 5) Clinical Features: Table-5

Symptoms	Number of patients	Percentage
Abdominal Pain	160	100.0
Vomiting	36	22.5
Fever	22	13.8
Jaundice	3	1.9
Abdominal distension	2	1.3

The total patients studied in this study were 160 out of which 160 patients presented with characteristic abdominal pain (100%) along with which

• 36 patients presented with vomiting (22.5%)

- 22 patients presented with fever (13.8%)
- 3 patients presented with jaundice (1.9%) and
- 2 patients presented with abdominal distension (1.3%).

#### 6) Serum Amylase and Lipase Correlation: Table-6

Parameter	Mean	SD	Median	Minimum	Maximum
Serum amylase	544.4	519.9	436	198	4807
Serum lipase	707.4	684.8	655	123	7098

The tabular column 6 shows serum amylase and lipase in correlation with onset of abdominal pain and acute pancreatitis. Out of 160 patients included in the study, the mean serum amylase level is 544.4 with standard deviation of 519.9 and median of 436 and the minimum level of serum amylase was 198 and maximum value was 4807U/L in case of acute pancreatitis. Out of 160 patients included in the study, the mean serum lipase level is 707.4 with standard deviation of 684.8 and median of 655 and the minimum level of serum lipase was 123 and maximum value was 7098U/L in case of acute pancreatitis.

## 7) Comparison Of Variables Involved in Scoring System:

The first variable in PANC-3 scoring system in Table 7 is **Hematocrit** (HCT>44mg/dl) is considered to be positive and given a score of 1 and HCT<44mg/dl is considered to be negative and given a score of 0. Out of 160 patients in our study, 79 (49.4%) patients had HCT<44mg/dl and were assigned a score of 0 and 81 (50.6%) patients had HCT>44mg/dl and were assigned a score of 1. The second variable in PANC-3 scoring system in Table 7 is **Body Mass Index** (BMI>30kg/m<sup>2</sup>) is considered to be positive and given a score of 1 and BMI<30kg/m<sup>2</sup> is considered to be negative and given a score of 0. Out of 160 patients in our study, 139 (86.9%) patients hadBMI<30kg/m<sup>2</sup> and were assigned a score of 0 and 21 (13.1%) patients who had BMI>30kg/m<sup>2</sup> were assigned a score of 1. The third variable in PANC-3 scoring system in Table 7 is **Chest X-ray** (Pleural effusion present) is considered to be positive and given a score of 1 and absence of pleural effusion on chest x-ray is considered to be negative and given a score of 0. Out of 160 patients in our study, 49 (30.6%) patients didn't have pleural effusion and were assigned a score of 0 and 111 (69.4%) patients had pleural effusion and were assigned a score of 1.

#### Table 7:-

Variable	Number	Percentage
НСТ		
0 (<44mg/dl)	79	49.4
1 (>44mg/dl)	81	50.6
BMI		
$0 (<30 \text{kg/m}^2)$	139	86.9
$1 (>30 \text{kg/m}^{2})$	21	13.1

CXR		
0 (P.E-Absent)	49	30.6
1 (P.E-Present)	111	69.4
PANC-3		
1	114	71.3
2	39	24.4
3	7	4.4
BUN		
0 (<25mg/dl)	96	60.0
1 (>25mg/dl)	64	40.0
GCS		
0 (<15)	81	50.6
1 (=15)	79	49.4
SIRS		
0 (<2)	71	44.4
1 (>2)	89	55.6
AGE		
0 (<60years)	159	99.4
1 (>60years)	1	0.6
CXR		
0 (P.E-Absent)	49	30.6
1 (P.E-Present)	111	69.4
BISAP score		
1	20	12.5
2	106	66.3
3	27	16.9
4	6	3.8
5	1	0.6

Out of 160 patients in our study, 114 (71.3%) had a **PANC-3 score** of 1, 39 (24.4%) had a PANC-3 score of 2 and 7 (4.4%) had a PANC-3 score of 3. PANC-3 score of 2 or more is considered to be positive.

The first variable in BISAP scoring system in Table 7 is Blood Urea Nitrogen (BUN>25mg/dl) is considered to be positive and given a score of 1 and BUN<25mg/dl is considered to be negative and given a score of 0. Out of 160 patients in our study, 64 (40%) patients had BUN>25mg/dl were assigned a score of 1 and 96 (60%) patients had BUN<25mg/dl were assigned a score of 0. The second variable in BISAP scoring system in Table 7 is Impaired Mental Status (GCS<15) is considered to be positive and given a score of 1 and GCS>15 is considered to be negative and given a score of 0. Out of 160 patients in our study, 79 (49.4%) patients had GCS<15 were assigned a score of 1 and 81 (50.6%) patients had GCS-15 were assigned a score of 0. The third variable in BISAP scoring system in Table 7 is Systemic Inflammatory Response Syndrome (SIRS>2) is considered to be positive and given a score of 1 and SIRS<2 is considered to be negative and given a score of 0. Out of 160 patients in our study, 89 (55.6%) patients had SIRS>2 were assigned a score of 1 and 71 (44.4%) patients had SIRS<2 were assigned a score of 0. The fourth variable in BISAP scoring system in Table 7 is Age (>60years) is considered to be positive and given a score of 1 and Age<60 years is considered to be negative and given a score of 0. Out of 160 patients in our study, 1 (0.6%) patient had age>60 years was assigned a score of 1 and 159 (99.4%) patients were aged <60 years were assigned a score of 0. The fifth variable in BISAP scoring system in Table 7 is Chest x-ray (Pleural Effusion-Present) is considered to be positive and given a score of 1 and absence of pleural effusion is considered to be negative and given a score of 0. Out of 160 patients in our study, 49 (30.6%) patients didn't have pleural effusion and were assigned a score of 0 and 111 (69.4%) patients had pleural effusion and were assigned a score of 1. Out of 160 patients in our study, 20 (12.5%) had a BISAP score of 1, 106 (66.3%) had a BISAP score of 2, 27 (16.9%) had a BISAP score of 3. 6 (3.8%) had a BISAP score of 4 and 1 (0.6%) had a BISAP score of 5.

#### 8) Complications: Table-8

Complications	Number	Percentage (%)
Yes	11	6.9
No	149	93.1
Total	160	100.0

Out of 160 patients in the study, 11(6.9%) developed complications associated with the condition like pancreatic necrosis, pancreatic abscess, upper gastrointestinal bleeding, MODS, sepsis and death and 149 (93.1%) patients didn't develop any complications during their hospital stay.

#### 9) Organ Failure and Pancreatic Necrosis: Table-9

Parameter	Number	Percentage (%)
Organ Failure (OF)		
+	6	3.8
-	154	96.3
Pancreatic Necrosis (pNEC)		
+	6	3.8
•	154	96.3

Out of 160 patients in the study, 6 patients (3.8%) developed organ failure and 154 patients (96.3%) did not develop organ failure and 6 patients (3.8%) developed pancreatic necrosis and 154 patients (96.3%) did not develop pancreatic necrosis.

#### 10) Outcome Of the Patients: Table-10

Outcome	Number	Percentage
ALIVE	157	98.1
DEATH	3	1.9
Total	160	100

Out of 160 patients admitted for the study, 3 patients (1.9%) died due to the complications associated with the condition.

#### 11) PANC-3 Versus Bisap Scoring System: Table-11

PANC-3	BISAP≥3		BISAP<3		Total
	n	%	n	%	
≥2	16	34.8	30	65.2	46
<2	18	15.8	96	84.2	114
Total	34	100.0	126	100.0	160
Chi square p value=0.008 (Significant)					

Out of 160 patients in this study, 46 patients had a PANC-3 score of  $\geq 2$  and 114 patients had a PANC-3 score of <2 and 34 patients had a BISAP score of  $\geq 3$  and 126 patients had a BISAP score of <3. In this study, out of 160 patients, 91 patients were diagnosed to have mild acute pancreatitis, 37 patients were diagnosed with moderate acute pancreatitis and 32 patients found to have severe acute pancreatitis. All the 32 patients were correctly predicted by PANC-3 score and 26 patients were correctly predicted by BISAP scoring. The severity was assessed by correlating the scores with three factors: organ failure, necrosis and mortality.

#### 12) PANC-3 Versus Complications: Table-12

PANC-3	Complications-Yes		Complications-No		Total	
	n	%	n	%		
$\geq 2$	11	100.0	35	23.5	46	
<2	0	0	114	76.5	114	
Total	11	100.0	149	100.0	160	
Chi square p value<0.001 (Significant)						

Out of 160 patients in this study, 46 patients had aPANC-3 score of  $\geq 2$  out of which 11 patients developed complications associated with the disease.

BISAP	Complicat	<b>Complications-Yes</b>		ations-No	Total		
	n	%	n	%			
≥3	10	90.9	24	16.1	34		
<3	1	9.1	125	83.9	126		
Total	11	100.0	149	100.0	160		
Chi square p value<0.001 (Significant)							

#### **13) BISAP Versus Complications: Table-13**

Out of 160 patients in this study, 34 patients had a BISAP score of  $\geq$ 3 out of which 10 (90.9%) patients developed complications associated with the disease and 1 (9.1%) patient with BISAP score <3 developed complications associated with the disease.

#### 14) Comparison Of Panc-3 And Bisap: Table-14

Parameter	Sensitivity	Specificity	PPV	NPV	AUC
PANC-3	100.0%	76.5%	23.9%	100.0%	0.883
BISAP	90.9%	83.9%	29.4%	99.2%	0.874



The above chart shows AUC and ROC of PANC-3 and BISAP

In our study, the sensitivity of PANC-3 score was 100% and the specificity was 76.5%. The PPV was 23.9% and the NPV was 100% in predicting severe acute pancreatitis. The ROC analysis for organ failure showed PANC-3 score has AUC of 0.883. The diagnostic accuracy is 96.03%. The Chi-square p value of 0.001 (significant). These scores are comparable to that observed by Fukuda et al<sup>6</sup>, who did a study on 65 patients and found out that PANC-3 score had a sensitivity of 31.25%, specificity of 100%; PPV of 100%; and NPV of 81.66%. Hence by using Chi-square test, PANC-3  $\geq$  2 has significant correlation with prediction of the occurrence of organ failure (p<0.001), which matches well with study by Fukuda et al<sup>6</sup>. The analysis for severity of pancreatitis showed BISAP score has sensitivity of 90.9%, specificity of 83.9%, PPV of 29.4% and NPV of 99.2% and diagnostic accuracy of 85.2%. This does not correlate well with the study by Papachristou et al.<sup>15</sup> where BISAP score showed sensitivity of 70.42%, specificity of 92.4%, PPV of 57.7% and NPV of 84.3%. Hence by using Chi-square test, BISAP  $\geq$  3 has significant correlation with prediction of the occurrence of organ failure (p<0.001), which matches well with study by Vikesh Singh<sup>1</sup> et al and B U Wu et al<sup>8</sup>. The ROC analysis for organ failure showed BISAP score has AUC of 0.874. This correlates well with the study by Papachristou et al<sup>15</sup>, where AUC (0.81) for BISAP score. Hence PANC-3  $\geq$  2 has significant correlation in predicting the severity of acute pancreatitis.

## **Discussion:-**

Acute pancreatitis is an inflammatory disease of the pancreas that is associated with little or no fibrosis of the gland. It is usually characterized by the acute onset of symptoms in a previously healthy individual and the disappearance of those symptoms as the attack resolves. Prediction of severity is an essential step in the management of acute pancreatitis. Approximately 15%-30% patients present with severe disease, and the early recognition of such patients is essential to avoid morbidity and mortality associated with the attack.<sup>15,30</sup>

In this study we have mainly focused on the epidemiological aspect, treatment modality and need for a scoring system which will help in assessing the severity of pancreatitis with basic investigation modality in primary health care facilities and refer them to the tertiary care center at the earliest to prevent the complications and save the life of the patient.

The purpose of the present study was to compare the PANC-3 and BISAP scoring system in prediction of severity of pancreatitis. The findings of this study were compared with those available in literature. The results have been represented with tables and graphs for better understanding. The latest available literature regarding acute pancreatitis has been presented in the review of literature. The data from our study was tabulated and analysed according to appropriate statistical methods. The observations of our study are summarized below:

The age group of patients enrolled in this study ranges from 21 to 60 yrs. The peak incidence of the disease was noted in the 4th decade of life. The total number of patients studied in this study were 160, of which the patients presenting with acute pancreatitis were maximum in age group of 31-40 years which included 60 patients (37.5%). Next comes the 41-50 years which included 58 patients (36.3%). Next comes the 51-60 which included 26 patients (16.3%) and at last the age group of 21-30 years which included 16 patients (10%). The total patients studied in this study were 160, which comprises of 153 (95.6%) males and 7 (4.4%) females. The female to male sex ratio is 22:1. Alcohol consumption is not prevalent in female population so females are not commonly affected by acute pancreatitis. There is a male preponderance in alcoholic and female preponderance in non-alcoholic pancreatitis. The mean and standard deviation are 41.5+/-8.4 and median of 41 for males. The mean and standard deviation are 42.6+/-6.2 and median of 45 for females. The most common cause is alcohol with number of patients who had alcoholic pancreatitis is 124 (77.5%) out of 160 patients. Number of patients who had gall stone pancreatitis is 19 (11.9%), idiopathic 15 (9.4%), drug induced (0.6%) and hypertriglyceridemia (0.6%). The most common chief complaint was pain abdomen (100%) followed by 36 patients presented with vomiting (22.5%), 22 patients presented with fever (13.8%), 3 patients presented with jaundice (1.9%) and 2 patients presented with abdominal distension (1.3%). The most common presentation is pain abdomen mainly situated in the epigastric area radiating to the back and associated with nausea and vomiting both in alcoholic and non-alcoholic. Most common sign is tenderness which is common in both alcoholic and non-alcoholic pancreatitis. Most common modality of investigation is serum Amylase, serum Lipase and Ultrasound abdomen. Serum amylase and lipase value is more raised in non-alcoholic than alcoholic pancreatitis. Ultrasound abdomen was diagnostic in 96.2% of patients in our study. CT abdomen was reserved for patients with diagnostic dilemma or severe pancreatitis.

Initial management included adequate fluid resuscitation, adequate analgesia and nutritional supplement. Nasogastric decompression was advocated if there was significant nausea, vomiting or if patient had ileus. Prophylactic antibiotics was started for patients with severe disease or those who developed complications. 11(6.9%) developed complications associated with the condition like pancreatic necrosis, pancreatic abscess, upper gastrointestinal bleeding, MODS, sepsis and death and 149 (93.1%) patients didn't develop any complications during their hospital stay. 6 patients (3.8%) developed organ failure and 6 patients (3.8%) developed pancreatic necrosis, 1 patient developed upper gastrointestinal bleeding, 1 patient developed pancreatic abscess for which he underwent surgery and 3 patients (1.9%) died due to the complications associated with the condition. In this study, out of 160 patients, 91 patients (56.9%) were diagnosed to have mild acute pancreatitis, 37 patients (23.1%) were diagnosed with moderate acute pancreatitis and 32 patients (20%) found to have severe acute pancreatitis.

All the 32 patients were correctly predicted by PANC-3 score and 26 patients were correctly predicted by BISAP scoring. The severity was assessed by correlating the scores with three factors: organ failure, necrosis and mortality. Out of 160 patients in this study, 46 patients had a PANC-3 score of  $\geq 2$  out of which 11 patients developed complications associated with the disease. Out of 160 patients in this study, 34 patients had a BISAP score of  $\geq 3$  out of which 10 (90.9%) patients developed complications associated with the disease. In our study, the sensitivity of PANC-3 score was

100% and the specificity was 76.5%. The PPV was 23.9% and the NPV was 100% in predicting severe acute pancreatitis. The ROC analysis for organ failure showed PANC-3 score has AUC of 0.883. The diagnostic accuracy is 96.03%. The Chisquare p value of 0.001 (significant). The analysis for severity of pancreatitis showed BISAP score has sensitivity of 90.9%, specificity of 83.9%, PPV of 29.4% and NPV of 99.2% and diagnostic accuracy of 85.2%. The ROC analysis for organ failure showed BISAP score has AUC of 0.874. Hence PANC-3  $\geq$  2 has significant correlation in predicting the severity of acute pancreatitis. PANC-3 score is widely available test that can be performed quickly, the three criteria used are simple, easy to measure with high accuracy in predicting severity of acute pancreatitis which are available at every health-care center and cost of assessing is low compared to other scoring systems. Our study correlated well with other studies and we hope that it will help the practising surgeons in primary health centres in rural areas with basic facilities to assess and predict the severity of acute pancreatitis and refer them to the tertiary centre as early as possible to prevent complications associated with the disease and mortality associated with it.

## **Conclusion:-**

Acute pancreatitis is the most terrible of all the calamities that occur in connection with the abdominal viscera. Prediction of severity is an essential step in the management of acute pancreatitis. 50% of mortality can be reduced to 8% by its early recognition. Acute pancreatitis is a common cause of acute abdomen in patients presenting to the surgical emergency department.

Assessment of severity of pancreatitis helps in better outcome of patient in terms of morbidity and mortality, as we can give early and advanced care to those in need (that is cases of acute severe pancreatitis).

On analyzing the results of the study, PANC-3 predicted the severity of acute pancreatitis better than BISAP with greater sensitivity, specificity and positive predictive value. PANC-3 score is widely available test that can be performed quickly, the three criteria used are simple, easy to measure with high accuracy in predicting severity of acute pancreatitis which are available at every health-care center and cost of assessing is low compared to other scoring systems. The PANC-3 score is a useful tool in acute pancreatitis approach, due to its high efficacy, easy application and rapid results which enables classification of cases and early treatment.

PANC-3 can be used to predict the severity of pancreatitis as efficiently as BISAP. It uses only three criteria which are easily done and available in the basic health care setup. Its interpretation does not need expertise and can be applied at the time of admission which is an advantage when compared to classical scoring systems. PANC-3 scoring system is such an effort to prolong the life of patients by early detection and prompt treatment, easy to use, cost-effective and hence can be used in peripheral/rural centers for early referral. The combination of the PANC-3 variables was highly predictive of SAP.

PANC-3 scoring system is efficient, easy to assess and can be applied at the time of admission when compared to BISAP and sensitivity of PANC-3 scoring system is accurate compared to BISAP scoring system.

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