‘‘A COMPARATIVE STUDY BETWEEN BISAP SCORE AND JAPANESE SCORE FOR PREDICTING THE SEVERITY IN ACUTE PANCREATITIS’’

BY

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DISSERTATION SUBMITTED TO SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH, KOLAR, KARNATAKA

In partial fulfilment of the requirements for the degree of

MASTER OF SURGERY
IN
GENERAL SURGERY

Under the Guidance of

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Signature of the Candidate

Dr. DAVE TUSHAR JITENDRA

LIST OF ABBREVIATIONS

AD	Anno Domini
AKI	Acute Kidney Injury
ALP	Alkaline Phosphatase
ALT	Alanine Transaminase
AP	Acute pancreaditis
ARDS	Acute Respiratory Distress Syndrome
AUC	Area Under the Curve
BC	Before Christ
BISAP	Bedside Index for Severity in Acute Pancreatitis
BUN	Blood Urea Nitrogen
CRP	C-Reactive Protein
CT	Computed Tomography
CTSI	Computerized Tomography Severity Index
ERCP	Endoscopic Retrograde Cholangiopancreatography
GI	Gastrointestinal
GTT	Glucose Tolerance Test
ICU	Intensive Care Unit
JPN	New Japanese Score
JSS	Japanese severipy score
LDH	Lactate Dehydrogenase
MODS	Multiple Organ Dysfunction Syndrome
NPV	Negative Predictive Value
PAN	Polyarteritis Nodosa
PPV	Positive Predictive Value
ROC	Receiver Operating Characteristic
SAP	Severe Acute Pancreatitis
SICU	Surgical Intensive Care Unit
SIRS	Systemic Inflammatory Response Syndrome
SLE	Systemic Lupus Erythematosus

ABSTRACT

Background:

One of the most common medical condition which requires emergency surgery is Acute pancreatitis which occurs due to two major causes involving biliary disease and alcohol related condition in nearly 50-70% of the subjects .The disease manifests in a wide range of severity, like the mild peri pancreatic edema to the potentially life-threatening infected necrotizing and hemorrhagic pancreatitis. BISAP's clinical score are widely used in assessing acute pancreatitis severity. Radiological evaluation using the Balthazar radiological CT severity index is being increasingly used to identify infected necrosis as well as to determine the pancreatitis severity. The most recent criterion for severity of acute pancreatitis, the new Japanese score (JPN) for the assessment of acute pancreatitis was prepared is also good predictor. There are limited studies comparing BISAP score and JSS score in acute pancreatitis. Hence the present was conducted in our institute with the objective to compare BISAP score and JAPANESE score to assess the severity of acute pancreatitis.

Methods:

An Observational study was done on Patients diagnosed to have acute pancreatitis at R. L. Jalappa Hospital and Research Centre, Kolar from December 2018 to September 2020. 64 subjects based on Universal sampling technique were included in the study. All the subjects were subjected to BISAP and JSS scoring and were graded. Their outcome in terms of time for recovery and complication like hemodynamic instability, bacteremia, ARDS, reactive pleural effusion, gastrointestinal tract hemorrhage, renal failure, and disseminated intravascular coagulation, SIRS, MODS and mortality etc. were documented.

Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. **Chi-square test** was used as test of significance for qualitative data. Continuous data was represented as mean and standard deviation. **Graphical representation of data:** MS Excel and MS word were used to obtain various types of graphs such as bar diagram and Pie diagram. **p value** (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests. **Statistical software:** MS Excel**,** SPSS version 22 **(**IBM SPSS Statistics, Somers NY, USA) was used to analyze data.

Results:

In the present study the mean age of subjects was 38.58 ± 14.18 years. Majority of subjects belonged to age group 31 to 40 years (37.5%). 95.3% were males and 4.7% were females. Mean BISAP grade was 2.05 ± 0.722. Mean JSS grade was 4.02 ± 1.241. Mean duration of SICU stay was 2.70 ± 0.937 days. 90.6% were given Somatostatin Analogue. 26.6% had Clinical Deterioration. 4.7% had AKI, ARDS and other organ failure respectively and 1.5% had Necrotizing Pancreatitis. Mortality rate was 10.9%. BISAP score of >2 had highest sensitivity of 57.14%, specificity of 78.95%, PPV of 25% and NPV of 93.7% in predicting mortality among acute pancreatitis subjects. JSS score of >4 had highest sensitivity of 57.14%, specificity of 66.67%, PPV of 17.4% and NPV of 92.7% in predicting mortality among acute pancreatitis subjects.

Conclusion:

From the study it was concluded that BISAP score was better than JSS score in predicting Severity of Acute pancreatitis (Mortality and Clinical deterioration).

Keywords: BISAP Score, JSS Score, Acute Pancreatitis, Mortality.

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INTRODUCTION

INTRODUCTION

The anatomical basis of Pancreas was first created in the 17th century when the pancreatic duct was discovered (J.C. Wirsung 1642) and the duodenal papilla was described (J.K. Brunner 1683, C.B. Holdefreund 1713 and A. Vater 1750)[1].

It was in the year 1925 Moynihan described the condition known as Acute pancreatitis. It was considered to be one of the most terrible medical condition seen in the abdominal viscera since then to till date . Even today With advanced diagnostic technology in medical Field acute pancreatitis is one of major cause of Morbidity and Mortality .[1]

One of the most common medical condition which requires emergency surgery is Acute pancreatitis which occurs due to two major causes involving biliary disease and alcohol related condition in nearly 50-70% of the subjects.

AP can be classified from mild to severe. Interstitial edema and minimal organ dysfunction characterizes mild form, whereas severe acute pancreatitis (SAP) shows features of pancreatic necrosis, Systemic Inflammatory Response Syndrome (SIRS) and often multi-organ failure. About 80% of the patients have mild acute pancreatitis with mortality of about 1%, whereas SAP carries a risk of 20-50%. Most patients recover without complications; the overall mortality rate is between 2-5% [2, 3].

This condition presents with a wide range of severity, from the mild peri pancreatic edema to the potentially life-threatening infected necrotizing and hemorrhagic pancreatitis. BISAP's clinical score are widely used in assessing the severity of acute pancreatitis. Radiological evaluation using the Balthazar radiological CT severity index is being increasingly used to identify infected necrosis as well as to determine the severity of

pancreatitis.

The most recent criterion for severity of acute pancreatitis, the new Japanese score (JPN) for severity assessment of acute pancreatitis was prepared is also good predictor[4]. These two scoring systems use parameters which are taken at the time of hospitalization, predict the severity well and aid in planning the course of management.

The diagnosis of Acute Pancreatitis remains to be done by the clinical examination which can be further supported by increased value of serum amylase by 1.5 to 2 times the normal value. Further evaluation of Serum Lipase levels is considered to be confirmatory which increases the diagnostic yield .

Supportive radiological procedures are sonography, computed tomography. There are very few studies comparing BISAP score with the newer JPN score. Hence in the current study we intend to compare BISAP score and JAPANESE score to assess the severity of AP.

OBJECTIVES

AIM AND OBJECTIVES

AIM:

To compare BISAP score and JAPANESE score to assess the severity of AP.

OBJECTIVES:

1. To determine the severity of acute pancreatitis using BISAP score
2. To determine the severity of acute pancreatitis using JAPANESE score.
3. To compare the validity of BISAP score and JAPANESE score in predicting Severity of acute pancreatitis

REVIEW OF LITERATURE

REVIEW OF LITERATURE

HISTORY:

It was in the year 300 BC the description of pancreas was first made by Herophilus . Further in the year 100 AD the Rufus of Ephesus opined the function of pancrease is to provide the cushioning effect to the stomach and name it as "PANCREAS" meaning "all flesh".

The anatomical basis was first created in the 17th century when the pancreatic duct was discovered by J.C. Wirsung in 1642 and the duodenal papilla was described by J.K. Brunner in 1683. Further in the year 1974 John HC Ranson did the prognostication of acute pancreatitis in New York. The works of the John Ranson in the field of pancreatic Disease gave immense information and knowledge to the medical professionals regarding the non surgical and surgical management of this condition and was considered to be a Pioneer in the field of Acute Pancreatitis .

Emil J Balthazar who was a professor in Bellevue Medical Center at New York emphasized the importance of CT grading and uses of CT in diagnosis of Acute Pancreatitis and also established the it can be used as to asses the disease severity, & in detecting the complications associated with acute pancreatitis. There were various ill-defined terminologies with regards to acute pancreatitis. The symposium done at Atlanta the university accepted, clinically based classification system for acute pancreatitis was developed.

In 2008, using 5 parameters-blood urea nitrogen, impaired mental status, SIRS, age and pleural effusion (BISAP) scoring for grading severity of AP was devised. BISAP

scoring aids in early identification of patients with increased risk of mortality prior to organ failure and therefore aggressive resuscitative measures can be planned to reduce the mortality. Similarly, Japanese ministry of health conducted national survey of AP, and devised a scoring system, the JAPANESE severity score. At present 9 parameters viz. shock, respiratory failure, oliguria, lactate dehydrogenase level, platelet count, serum calcium, C-reactive protein, SIRS and age are included as predictor for severity of AP[5].

On applying JPN severity score mortality rate is directly proportional to cases with a prognostic score. Various Literature have shown that there was no mortality when the prognostic score was less than 2 points, as compared to around 30.8% in cases when the score of 3 or more than 3 point[4]. JPN score has been used to lay down the guidelines for management of SAP and popularly used in JAPAN. In recent years the mortality rate in AP has dropped from 30% to 8.9%[4].

ANATOMY OF PANCREAS[1]

The name "pancreas" is originated from the Greek "pan" (all) and "kreas" (flesh). For a long time, its glandular function was not understood, and its function was to provide the cushioning effect to stomach. The pancreas is situated in the retroperitoneum. It is divided into a head, which cover the 30% of the gland by mass, and a body and tail, which together constitute 70%. The head lies overlying the body of the second lumbar vertebra and the vena cava and within the curve of the duodenum. Behind the neck of the gland there will be Aorta and the superior mesenteric vessels . The uncinate process of Pancreas is located in the side of the head of pancreas in the left side and behind the superior Mesenteric Vein.

The Superior Mesenteric vein merges with the splenic vein behind the neck of pancreas at its upper border to form Portal Vein .The tip of the pancreatic tail extends up to

the splenic hilum. The pancreas weighs approximately 80 g. Of this, 80–90% is composed of exocrine acinar tissue, which is organised into lobules. The main pancreatic duct branches into interlobular and intralobular ducts, ductules and, finally, acini. The main duct is lined by columnar epithelium, which becomes cuboidal in the ductules. Acinar cells are clumped around a central lumen, which communicates with the duct system. Clusters of endocrine cells, known as islets of Langerhans, are present all along the pancreas. Islet cells consist of differing cell types: 75% are B cells which produces insulin; 20% are A cells which produces glucagon; and the remainder are D cells which secretes somatostatin and a small number of pancreatic polypeptide cells. Within an islet, the B cells form an inner core surrounded by the other cells. Capillaries draining the islet cells drain into the portal vein, forming a pancreatic portal system.

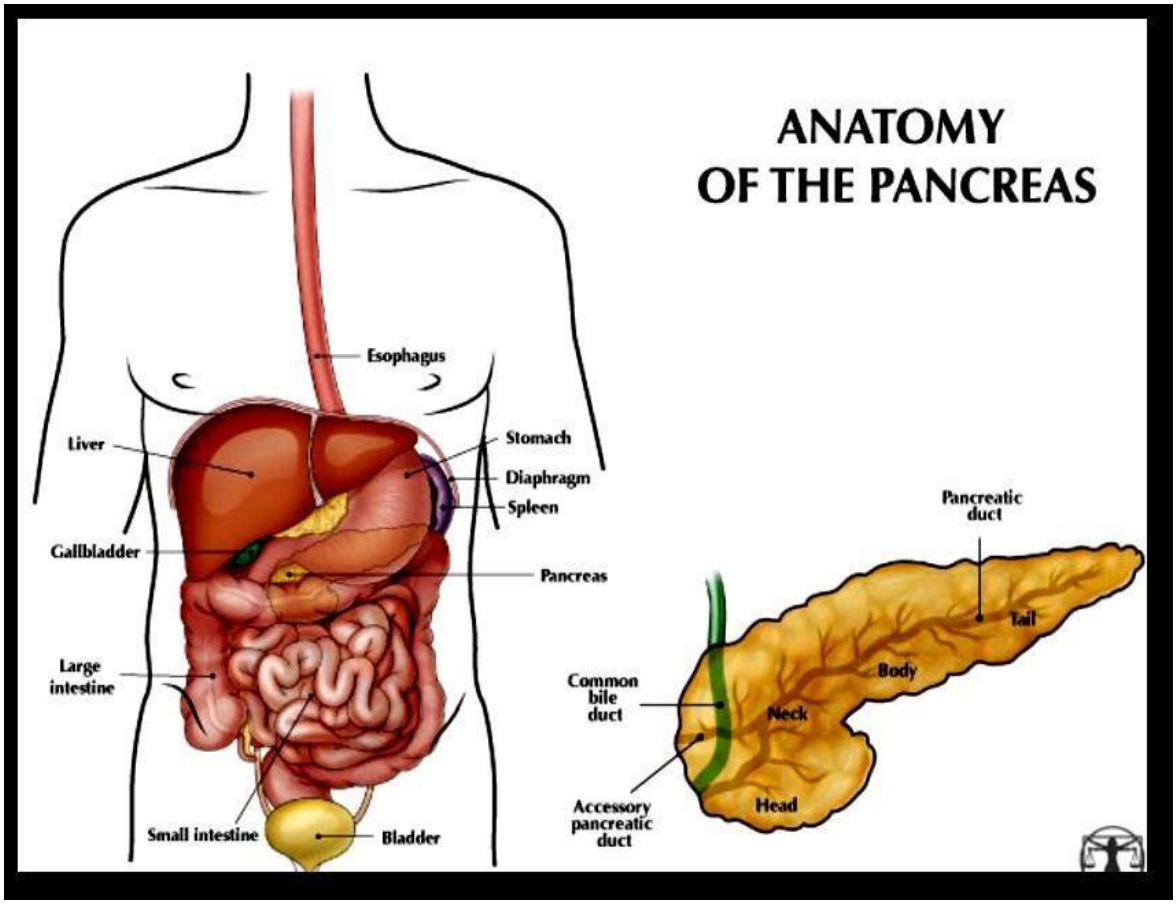

Figure 1. Anatomy of Pancreas

ETIOLOGY ACUTE PANCREATITIS[6]

In nearly 90% of the cases the History of Alcohol intake and the presence of biliary tract disease is seen. In United States the usage of Alcohol is considered to be one of the main cause of Acute Pancreatitis

OBSTRUCTION

- Choledocholithiasis.
- Ampullary or pancreatic tumour.
- Worms
- Fforeign bodies obstructing the papilla.
- Pancreas divisum with accessory duct obstruction.
- Choledochocele.
- Peri ampullary duodenal diverticula.
- Hypertensive sphincter of Oddi.

TOXIN OR DRUGS

- TOXIN- Ethylalcohol, Methylalcohol, scorpion venom, organophosphorus, insecticides.
- DRUGS – Azathioprine, Valproic acid, , Metronidazole, Nitrofurantoin, Furosemide, Sulfonamide, Mercaptopurin , Methyldopa, Cimetidine, Ranitidine, Estrogens, Didanosine, Acetaminophen, erythromycin, Tetracycline.

TRAUMA

- Blunt trauma to the abdomen.
- Iatrogenic causes like postoperative trauma, ERCP, Endoscopic sphincterotomy.

METABOLIC ABNORMALITIES

- Hyper triglyceridemia
- Hypercalcemia

HEREDITARY PANCREATITIS

INFECTION

- Parasitic- Ascariasis, Clonorchiasis
- Viral - Hepatitis A, B, non-A, non-B, Coxsackie Virus-B, Echo virus, adenovirus, Mumps, , cytomegalovirus, varicella, Epstein bar virus, Rubella Human Immunodeficiency virus.
- Bacterial- Mycoplasma, Campylobacter jejuni,
- Mycobacterium tuberculosis, Mycobacterium avium complex, Legionella, Leptospirosis.

VASCULAR ABNORMALITIES

- ISCHEMIA – Hypo perfusion, Atherosclerotic emboli.
- Systemic Lupus Erythematous , Malignant hypertension.

MISCELLANEOUS CONDITIONS

- Penetrating peptic ulcer.
- Crohn’s disease.
- Reye’s syndrome,
- Cystic fibrosis.
- Hypothermia.
- Pregnancy.

IDIOPATHIC CAUSE

DIAGNOSTIC WORK UP

1. Routine Blood Tests

- Pancreatitis can induce a diffuse capillary leak syndrome that, when combined with vomiting, can result in significant fluid losses. The resulting hypovolemia can be marked. It usually leads to an increased haematocrit, haemoglobin, blood urea nitrogen, and creatinine.
- Serum albumin levels may be markedly depressed, particularly if fluid loss is corrected by administration of albumin-free crystalloid solutions.
- The serum electrolytes may be normal, but with significant vomiting, a hypochloremic metabolic alkalosis can develop.
- The WBC count is usually elevated with an associated left shift in the differential count.
- Blood glucose may be elevated either due to associated diabetes mellitus or because of increased glucagon and catecholamine release combined with diminished insulin release.
- In the early stages of Pancreatitis increase level of bilirubin is a common findings which occurs due to biliary tract stone or due to inflamed biliary tract (and possibly fibrotic) pancreas causing bile duct obstruction, and in this setting, cholangitis with positive blood cultures can be superimposed on the pancreatitis. The hyperbilirubinemia of pancreatitis can also reflect the non-obstructive cholestasis that often accompanies any severe illness. Elevation of the LFT Markers are also considered significant.
- Hypertriglyceridemia is routinely noted in patients who have hyperlipidaemia induced pancreatitis. Hypertriglyceridemia can also be induced by exposure to ethanol, and therefore, the diagnosis of pancreatitis is always suspected when serum lactate is found when evaluating an alcoholic patient with abdominal pain. A serum triglyceride should be obtained and considered the aetiology if 1,000 mg / dl.

- Many patients with pancreatitis appear to have hypocalcemia which occurs due to hypoalbuminemia that accompanies pancreatitis. Occasionally, however, patients with severe disease have a reduction in their free, ionized calcium that is not a reflection of hypoalbuminemia. Some of these patient's manifest tetany and carpopedal spasm, making treatment with calcium mandatory.
- In those cases, thrombocytopenia, elevated levels of fibrin degradation products, a decreased fibrinogen level, prolonged partial thromboplastin time, and a prolonged prothrombin time can be observed.

2. Amylase Measurement
   - Within 24 hours after the onset of acute Pancreatitis symptoms the serum Amylase level begins to increase and it further returns to normal in subsequent weeks.
   - The Normal Serum Amylase level is around 60-180 U/L.
   - When the level increases more than 3 times the normal value it is considered to be significant .
   - If the serum Amylase level continues to increases beyond the initial weeks it is a sign on ongoing pancreatic inflammation and also development of complications like Phlegmom, Pseudo Cyst or necrosis.
   - The Serum Amylase is considered to have a sensitivity of more than 95 % and Specificity of 70%.
   - The presence of Amylase in the urine sample (Normal is 4-400 U/L) is considered to be more sensitive index of condition but it cant be used for diagnostic purpose .
3. Serum lipase
   - **I**t is considered to be better indicator of acute pancreatitis than serum amylase
   - The lipase found in the serum originates mostly from the pancreas.
   - Lipase will be elevated foe longer duration when compared to amylase , hence among subjects who present late to hospital lipase can be better indicator than amylase .
   - The major disadvantage is it cant be considered as a specific marker for pancreatitis as it is also increase in other medical conditions like peptic ulcer perforation , Cholecystitits

and intestinal ischemia

RADIOLOGICAL PROCEDURE

1. RADIOGRAPH

- The plain abdominal radiograph will be helpful to rule out potential abdominal emergency conditions like intestinal perforation , mesenteric ischemia.
- Other findings which can be seen in Plain Radiograph are colon cut-off sign, sentinel loop, paralytic ileus, , increased gastro colic separation , cholelithiasis, obliteration of psoas margins.
- A chest X ray may show left pleural effusion, elevated left hemi diaphragm, basal atelectasis
- ARDS changes are seen on chest X –ray when it involves multiple organ.
- Upper GI contrast studies may show widening of –C loop of duodenum, anterior displacement of stomach and duodenal mucosal abnormalities, but are not longer favored as these finding are not specific.

2. ABDOMINAL ULTRASOUND

- The ultrasound examination of the abdomen does not help in arriving at any specific diagnosis of acute pancreatitis
- In nearly 40% of the subjects the pancreas will not be visible due to air filled bowel loops .
- The pancreatic necrosis and infection cannot be detected in ultrasound .
- Other structural anomalies of the pancreas and its surrounding structures can be identified using ultrasound

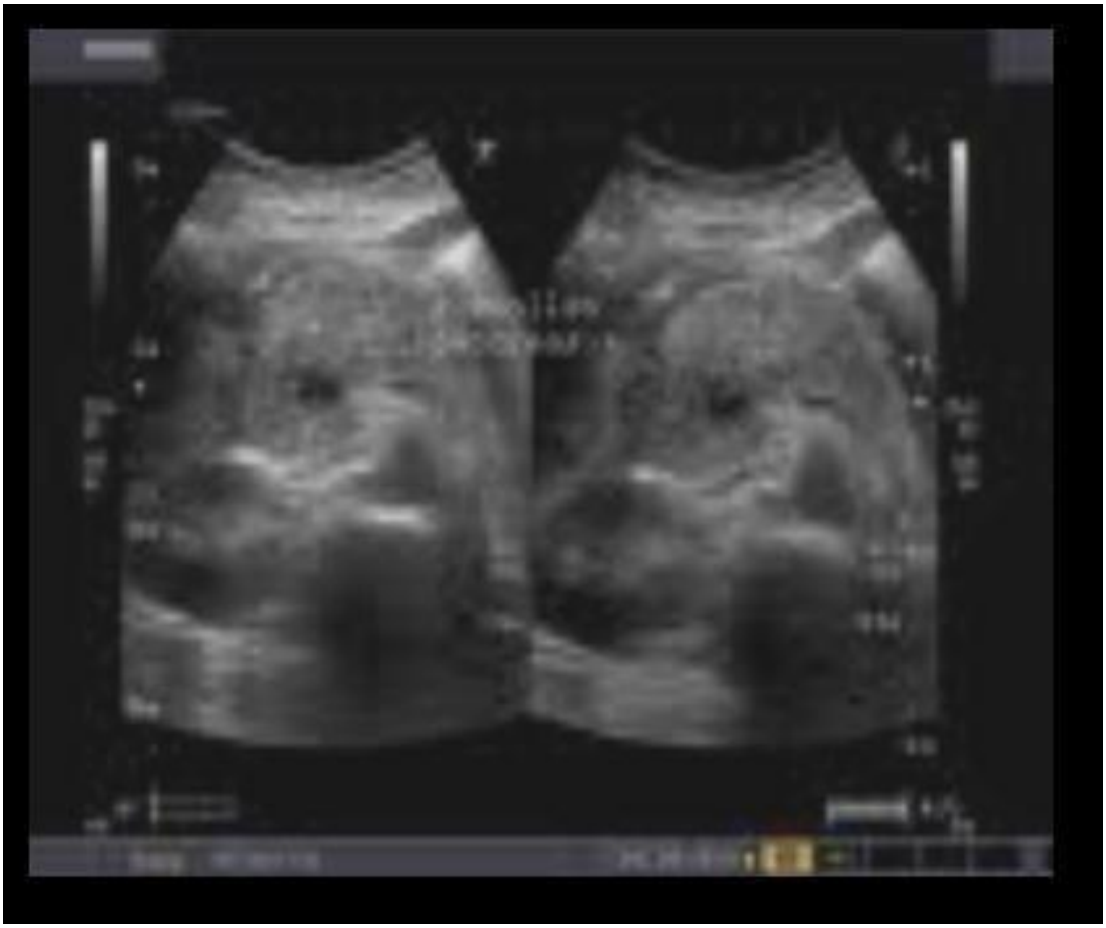

Figure 2. Showing bulky pancreas.

COMPUTED TOMOGRAPHY SCAN [7-11]

- The most sensitive non invasive diagnostic method in identifying acute pancreatitis is Computed Tomography scan.[12]
- It has a sensitivity of 85% and specificity of 100%
- It also helps in arriving at an alternated diagnosis for the elevated level of enzymes other than acute pancreatitis .
- Contrast enhancement differentiates between oedematous and necrotizing pancreatitis.

CT FINDING IN ACUTE PANCREATITIS

A. PANCREATIC CHANGES

- Parenchymal enlargement-diffuse, focal
- Parenchymal oedema
- Necrosis

B. PERIPANCREATIC CHANGES

- Blurring of fat planes
- Thickening of fascial planes
- Presence of fluid collection

C. NON- SPECIFIC SIGNS

- Pleural effusion
- Bowel distension
- Mesenteric oedema

It is also helpful in identifying any kind of structural complications that happens due to acute pancreatitis like pseudo cyst, pancreatic abscess and fluid collection. The severity of the acute pancreatitis can be identified using CT which also helps in predicting the prognosis of the disease .

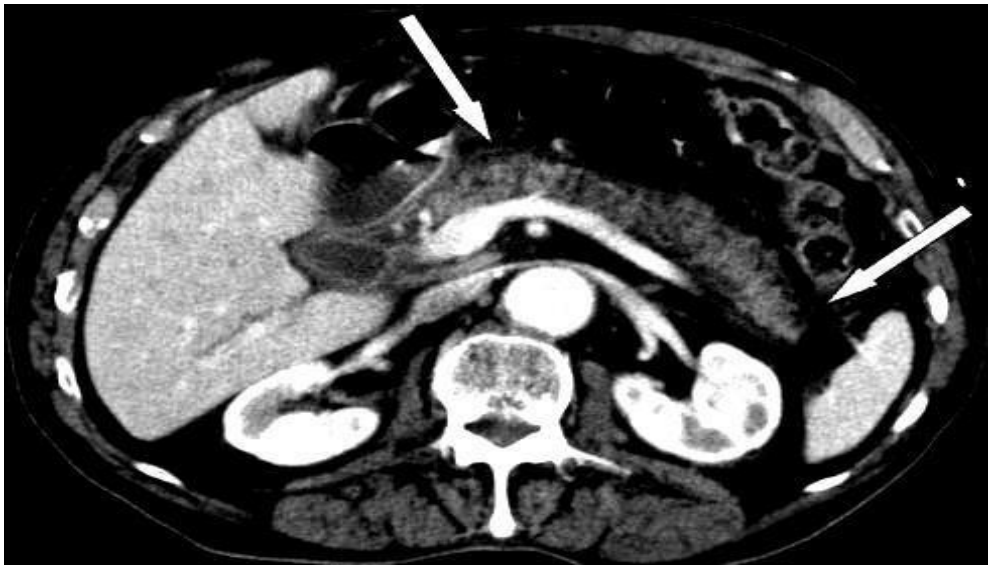

Figure 3. CT image interstitial oedematous pancreatitis with peripancreatic fat stranding (arrows)

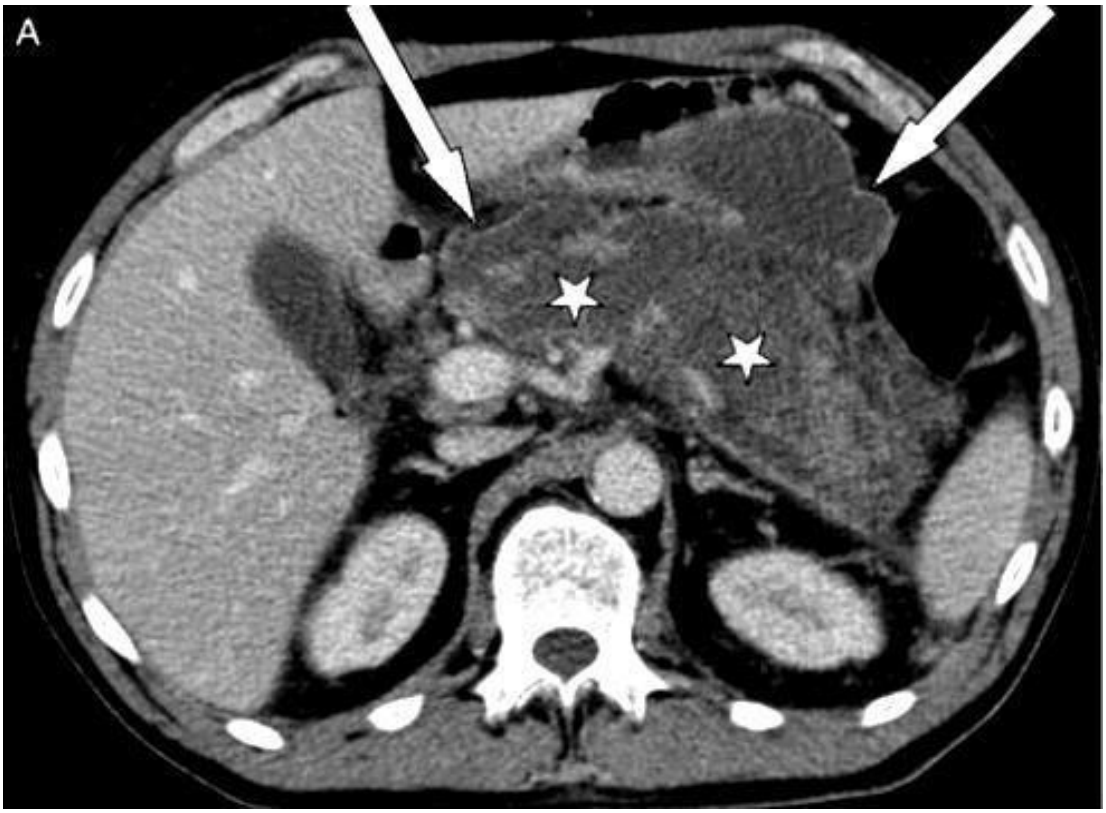

Figure 4. CT image of Necrotising pancreatitis

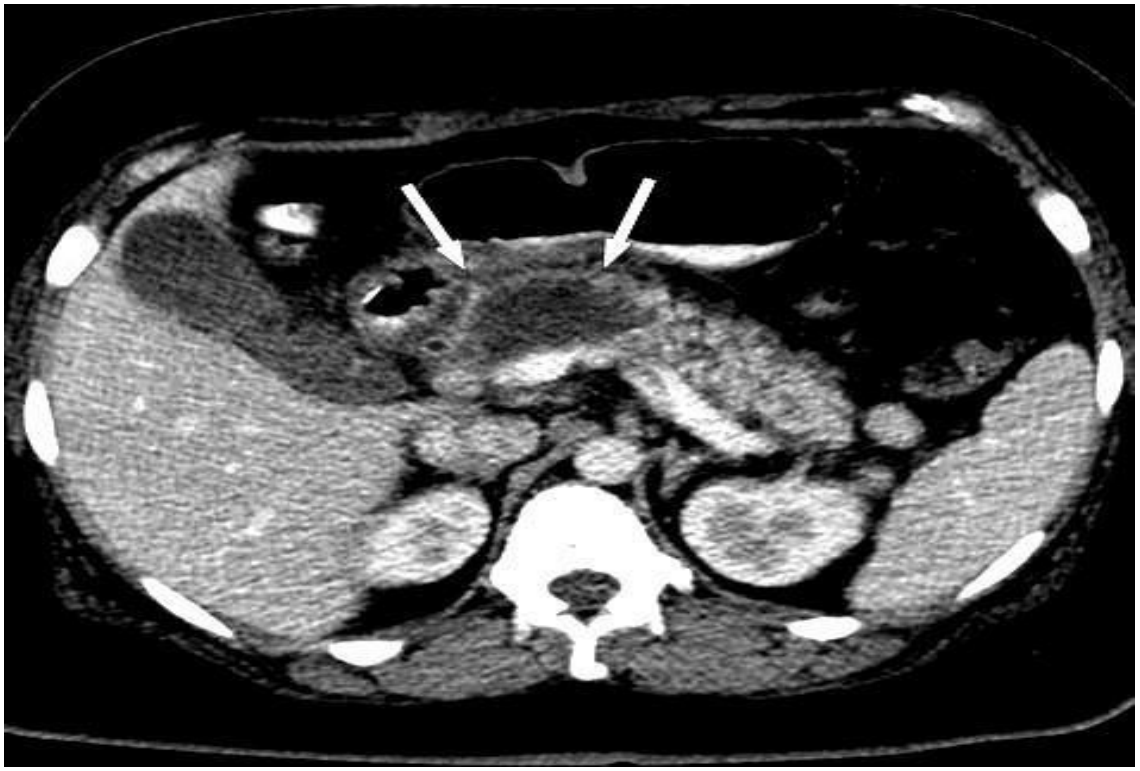

Figure 5. CT image of acute necrotic collection

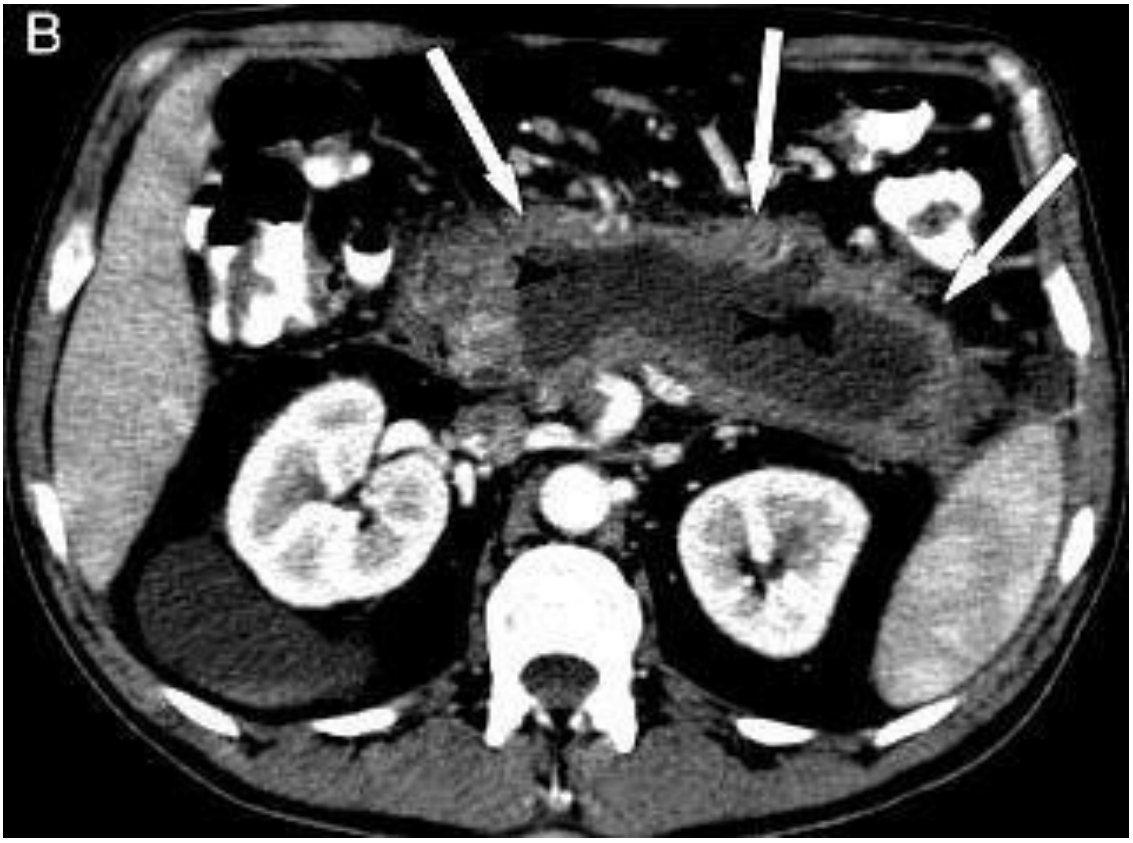

Figure 6. CT image of walled-off necrosis

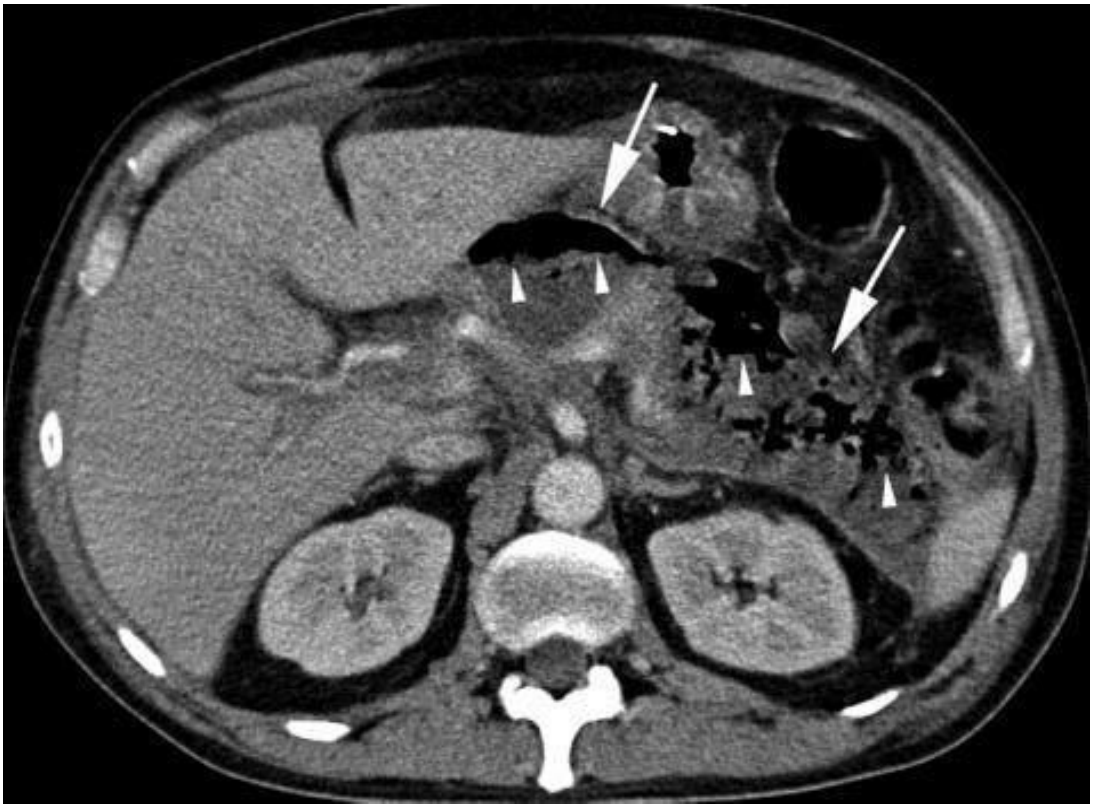

Figure 7. CT image of infected pancreatic necrosis

MULTIFACTOR SCORING SYSTEM

In the year 1936 Ranson developed a scoring system based on the five features which are measured during the time of admission and further six criteria obtained during the first 48 hours after admission . Further it was refined separately for acute pancreatitis due to alcohol and gallstone .

The patients who had Ranson prognostic sign upto 2 had no mortality risk factor and required simple supportive care . Those who had a 3 to 4 Ranson prognostic sign have a mortality of 15 % to 40% and they required ICU Care . The patients with five to six Ranson prognostic sign have a mortality risk of 50% and universally required support of intensive care unit. Patient with seven or more prognostic signs have a predicted mortality of almost100%.

RANSON'S CRITERIA [13]

A. Alcoholic Pancreatitis

i. On admission to hospital

- ❖ Age > 55 years
- ❖ White blood count > 16000/mm3
- ❖ Blood Glucose level > 200mg/dl
- ❖ Lactate dehydrogenage > 350 U/L
- ❖ Aspartate aminotransferase > 250 U/L

ii. Within 48 hours of admission

- ❖ Decrease in hematocrit >10 %
- ❖ Increase in blood urea nitrogen > 5 mg/ dl
- ❖ Serum calcium < 8 mg / dl

- ❖ Arterial oxygen pressure < 60mm Hg
- ❖ Base deficit > 4mmol/L
- ❖ Fluid sequestration > 6Ltr

B. Gallstone Pancreatitis

i. On admission to hospital

- ❖ Age > 70 year
- ❖ White blood count > 18,000
- ❖ Blood Glucose level > 220 mg/dl
- ❖ Lactate dehydrogenase > 400U/L
- ❖ Aspartate aminotransferase > 250U/L

ii. Within 48 hours of admission

- ❖ Decrease in haematocrit > 10 %
- ❖ Increase in blood urea nitrogen > 2mg/dl
- ❖ Serum calcium < 8mg/dl
- ❖ Fluid sequestration > 4l
- ❖ Base deficit > 5mmol/l

Score of ≥3 indicates severe pancreatitis.

BISAP‟s (Bedside Index of Severity in Acute Pancreatitis)[1]

Individual components of BISAP scoring system:

1. BUN > 25 mg/dl
2. Impaired mental status (Glasgow Coma Scale Score < 15)
3. SIRS-SIRS is defined as two or more of the following:
   a. Temperature of < 36 or > 38 ° C
   b. Respiratory rate > 20 breaths/min or PaCO2 < 32 mm Hg
   c. Pulse > 90 beats/min

d. WBC < 4,000 or >12,000 cells/mm3 or >10% immature bands.

4. Age > 60 years
5. Pleural effusion detected on imaging

Interpretation of Result: (One point for each positive criterion)

1. A score of 0-2 is low mortality of less than 2%.
2. A score of 3-5 is associated with a higher mortality of more than 15%.

Score of ≥3 indicates organ failure and pancreatic necrosis.

Glasgow system was developed by Imrie and his colleague in the year 1978 which was a modification of earlier system. In this system only 9 factors need to be assesed. It was further evaluated and refinement was done by Blamey and Imrie in 1984 which was known as modified Glasgow System where only 8 factors were required for assesement .[7]

MODIFIED GLASGOW (Imrie's) CRITERIA7

i. Within 48 hours of admission

- ❖ Age >55 years
- ❖ White blood cell count > 15000/mm3
- ❖ Glucose > 180mg/dl
- ❖ Blood urea nitrogen > 45 mg/dl
- ❖ Lactate dehydrogenase > 600U/L
- ❖ Albumin < 3.2gm/ dl
- ❖ Arterial oxygen pressure < 60mm Hg
- ❖ Serum calcium < 8 mg/dl

Score of ≥3 indicates severe pancreatitis.

CT SEVERITY INDEX

In 1989 Balthazae graded the patients into five categories based on CT Scan findings .[7] The patients without Peripancreatic inflammation were graded as A and B and Patients with one or more peripancreatatic collection were graded as D and E . The Patients with grade A and B usually have a mild uncomplicated course and grade D and E exhibit protracted clinical illness and also had a higher frequency of complications including death.

CT SEVERITY INDEX (BALTHAZAR 1990) SCORE[14]:

Grading of pancreatitis 0 – 4

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

Interpretation:

A. 0 – 3: Mortality 3%, Morbidity 8%
B. 4 – 6: Mortality 6%, Morbidity 35%
C. 7 – 10: Mortality 17%, Morbidity 92%

Pancreatic necrosis grading

A. None - 0
B. Less than or equal to 30% - 2

C. C. 30-50 % - 4

D. D. More than 50% - 6

The maximum score that can be obtained is 10

Individual components of the JSS scoring system [15]:

1. Base Excess ≤ 3 mEq/L or shock (systolic blood pressure<80 mmHg)
2. PaO_2 ≤ 60 mmHg (room air) or respiratory failure (respirator management is needed)
3. BUN ≥ 40 mg/dL (or Cr ≥ 2.0 mg/dL) or oliguria (daily urine output < 400 mL even after IV fluid resuscitation)
4. LDH ≥ 2 times of upper limit of normal
5. Platelet count ≤ 100,000/mm3
6. Serum Ca ≤ 7.5 mg/dL
7. CRP ≥ 15 mg/dL
8. Number of positive measures in SIRS criteria ≥3
9. Age ≥ 70 years

Interpretation of JSS scoring system: (one point for each positive criteria)

Patients having positive result of any 3 above mentioned criteria are classified to have SAP. Score of 2 or less is classified as mild acute pancreatitis.

Literature Published:

Singh VK et al., evaluated the study on Bedside index for severity in acute pancreatitis (BISAP) score and assessed mortality. There was a statistically significant increasing mortality with increasing BISAP score. A BISAP score 3 or more was associated with an

increased risk of developing organ failure, persistent organ failure, and pancreatic necrosis. They concluded that BISAP score represents a simple way to identify patients at risk of increased mortality and the development of intermediate markers of severity within 24 hours of presentation[16].

Muddana V et al., Compared BISAP, Ranson's and CTSI Scores in Predicting Organ Failure in Acute Pancreatitis. They concluded that the BISAP score is an accurate means for risk stratification in patients with acute pancreatitis. Its components are clinically relevant and easy to obtain simple scoring system that may reach the maximal utility and novel models are needed to further improve predictive accuracy[17].

Georgios I P et al., concluded that the BISAP score is an accurate means for risk stratification in patients with AP. Its components are clinically relevant and easy to obtain. The prognostic accuracy of BISAP is like those of the other scoring systems. We conclude that simple scoring systems may have reached their maximal utility and novel models are needed to further improve predictive accuracy[18].

Hamada T et al., from Japanese ministry of health conducted national survey of AP, and devised a scoring system, the JAPANESE severity score. At present 9 parameters viz. shock, respiratory failure, oliguria, lactate dehydrogenase level, platelet count, serum calcium, C-reactive protein, SIRS and age are included as predictor for severity of AP[15].

Kazunori Takeda et al in their study on applying JPN severity score mortality rate is directly proportional to cases with a prognostic score. Studies have shown that there was no mortality

when the prognostic score was less than 2 points, as compared to around 30.8% in cases with a prognostic score of 3 or more than 3 point[4]. JPN score has been used to lay down the guidelines for management of SAP and popularly used in JAPAN. In recent years the mortality rate in AP has dropped form 30% to 8.9%[4].

MATERIAL & METHODS

MATERIAL AND METHODS

Source of Data: Patients diagnosed to have acute pancreatitis at R. L. Jalappa Hospital and Research Centre, Kolar from December 2018 to September 2020.

Study Population:

Inclusion Criteria:

1. Patients diagnosed with acute pancreatitis admitted to the department of surgery.

Exclusion Criteria:

1. Necrotizing pancreatitis
2. Haemorrhagic pancreatitis

Duration of study: November 2018 and September 2020

Study Design: Observational study

Sampling technique: Universal sampling technique was followed in the present study

Sample size: **A total of** 64 study subjects who met the inclusion criteria during the study period of November 2018 and September 2020 and were included in the study.

Method of Data Collection:

1. All patients above the age of 21 years fulfilling the inclusion and exclusion criteria presented to department of Surgery, R. L. Jalappa Hospital.
2. Acute pancreatitis patient who fulfilled 2 or more of the following criteria, abdominal pain (staring from epigastrium radiating to the back), Serum amylase and/or lipase (Increased levels up to 3 times the normal value), Ultrasonography of the abdomen

within first 7 days of hospitalization demonstrating changes consistent with acute pancreatitis.

All the subjects were subjected to BISAP and JSS scoring and were graded. Scores were assigned and the patients were treated according to their severity.

Their outcome in terms of time for recovery and complication like hemodynamic instability, bacteremia, ARDS, reactive pleural effusion, gastrointestinal tract hemorrhage, renal failure, and disseminated intravascular coagulation, SIRS, MODS and mortality etc. were documented.

1. Blood investigations: Complete haemogram, renal function test, Random blood sugar, Serum amylase, Serum calcium, Lactate dehydrogenase, C-reactive protein, Arterial blood gas analysis.
2. Radiological investigations: Chest X-ray (PA view), X-ray erect abdomen, Ultrasound abdomen and pelvis.

Individual components of BISAP scoring system:

1. BUN > 25 mg/dl
2. Impaired mental status (Glasgow Coma Scale Score < 15)
3. SIRS-SIRS is defined as two or more of the following:
    a. Temperature of < 36 or > 38 ° C
    b. Respiratory rate > 20 breaths/min or PaCO2 < 32 mm Hg
    c. Pulse > 90 beats/min
    d. WBC < 4,000 or >12,000 cells/mm3 or >10% immature bands.
4. Age > 60 years
5. Pleural effusion detected on imaging

Interpretation of Result: (One point for each positive criterion)

1. A score of 0-2 is low mortality of less than 2%.
2. A score of 3-5 is associated with a higher mortality of more than 15%.

Individual components of the JSS scoring system:

1. Base Excess ≤ 3 mEq/L or shock (systolic blood pressure<80 mmHg)
2. PaO2 ≤ 60 mmHg (room air) or respiratory failure (respirator management is needed)
3. BUN ≥ 40 mg/dL (or Cr ≥ 2.0 mg/dL) or oliguria (daily urine output < 400 mL even after IV fluid resuscitation)
4. LDH ≥ 2 times of upper limit of normal
5. Platelet count ≤ 100,000/mm3
6. Serum Ca ≤ 7.5 mg/dL
7. CRP ≥ 15 mg/dL
8. Number of positive measures in SIRS criteria ≥3
9. Age ≥ 70 years

Interpretation of JSS scoring system: (one point for each positive criteria)

Patients having positive result of any 3 above mentioned criteria are classified to have SAP. Score of 2 or less is classified as mild acute pancreatitis.

Statistical analysis [19, 20, 21]

Data was entered into Microsoft excel data sheet and was analyzed using SPSS 22 version software. Categorical data was represented in the form of Frequencies and proportions. **Chi-square test** was used as test of significance for qualitative data. Continuous data was represented as mean and standard deviation. Validity of Bisap and JSS score in predicting outcome was assessed by using ROC Curve analysis. **Graphical representation of data:** MS Excel and MS word were used to obtain various types of graphs such as bar diagram, Pie diagram and ROC Curve. **p value** (Probability that the result is true) of <0.05 was considered as statistically significant after assuming all the rules of statistical tests. **Statistical software:** MS Excel**,** SPSS version 22 **(**IBM SPSS Statistics, Somers NY, USA) was used to analyze data.

Ethical consideration:

1. Institutional Ethical clearance was obtained prior to the start of the study
2. Informed consent was obtained from all the patients recruited prior to the start of the study
3. Standard of Care was provided to all the patients during the study period and follow-up.

RESULTS

RESULTS

Table 1. Age distribution of subjects

		Count	%
Age	<30 years	20	31.2%
	31 to 40 years	24	37.5%
	41 to 50 years	12	18.8%
	51 to 60 years	5	7.8%
	>60 years	3	4.7%
	Total	64	100.0%

In the study mean age of subjects was 38.58 ± 14.18 years. Majority of subjects were in the age group 31 to 40 years (37.5%).

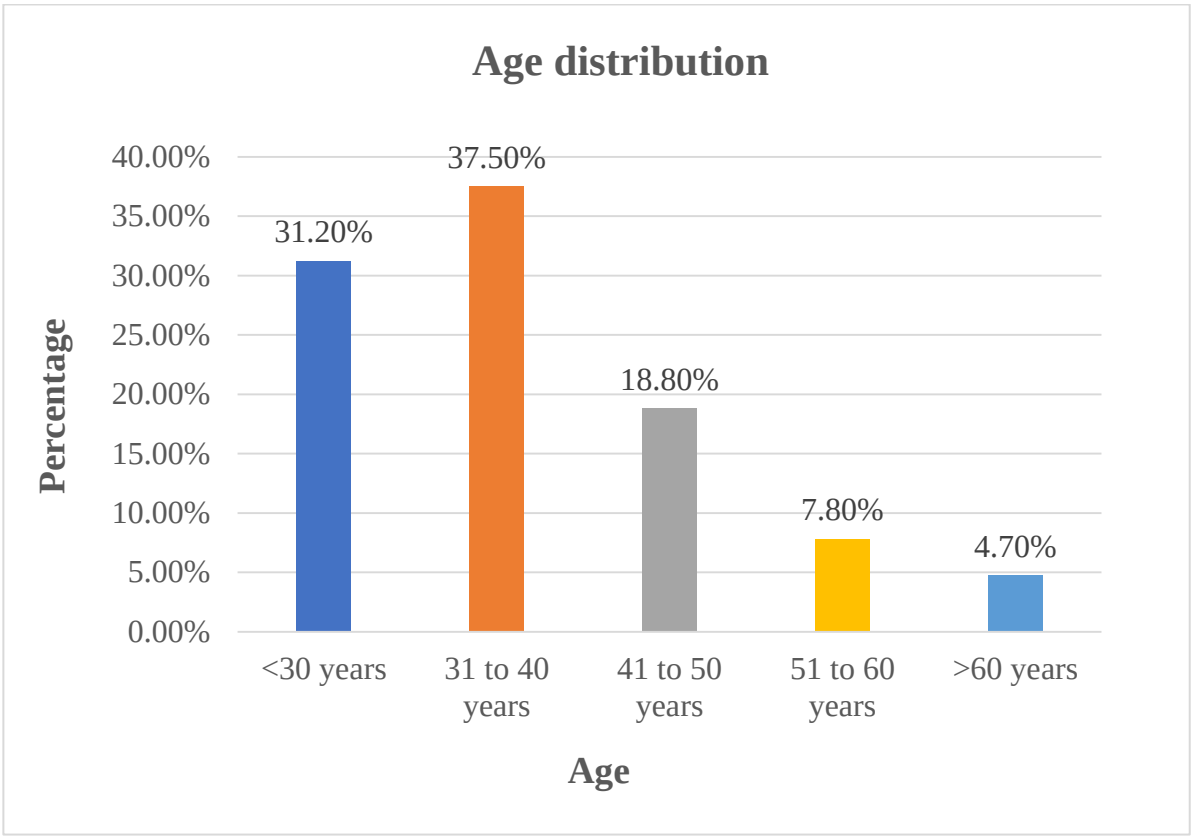

Figure 8: Bar diagram showing Age distribution of subjects

Table 2. Gender distribution of subjects

		Count	%
Gender	Female	3	4.7%
	Male	61	95.3%
	Total	64	100.0%

In the study 95.3% were males and 4.7% were females.

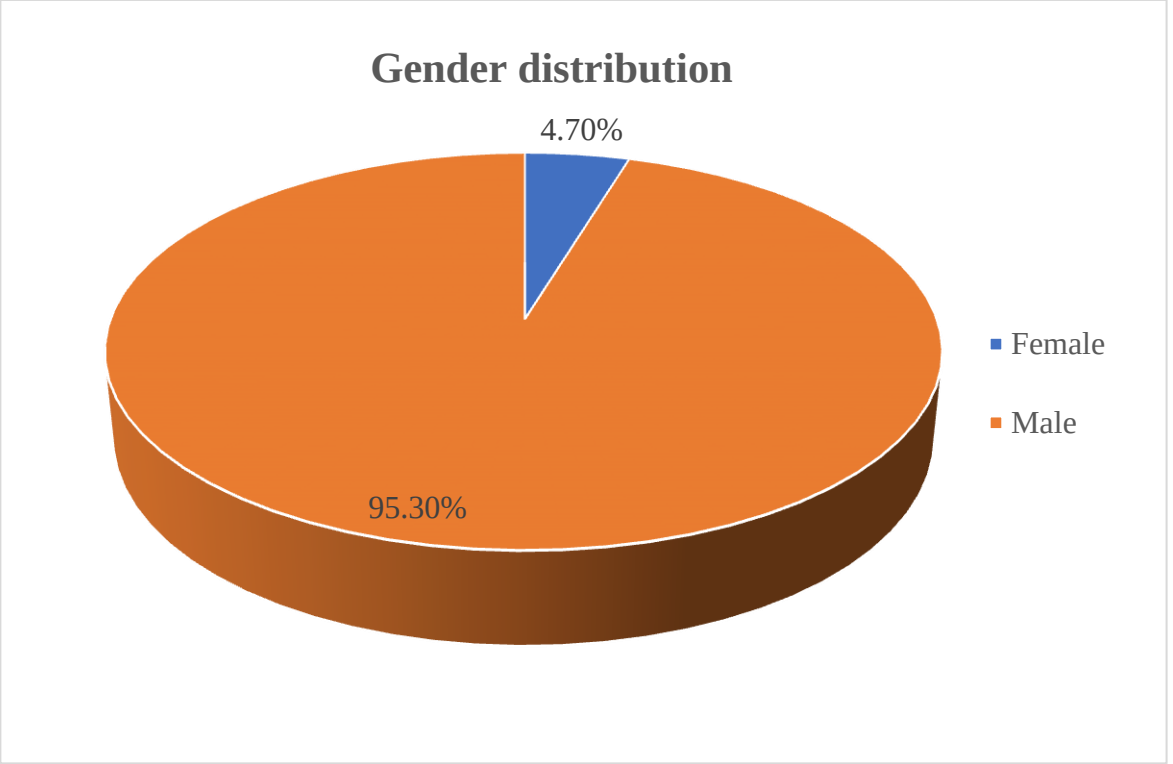

Figure 9: Pie diagram showing Gender distribution of subjects

Table 3. BISAP grade among subjects with Acute Pancreatitis

		Count	%
BISAP Grade	Mild Acute Pancreatitis	49	76.6%
	Moderate Acute Pancreatitis	1	1.6%
	Severe Acute Pancreatitis	14	21.9%
	Total	64	100.0%

Mean BISAP grade was 2.05 ± 0.722. In the study according to BISAP Score, 76.6% had mild, 1.6% had moderate and 21.9% had severe Acute Pancreatitis.

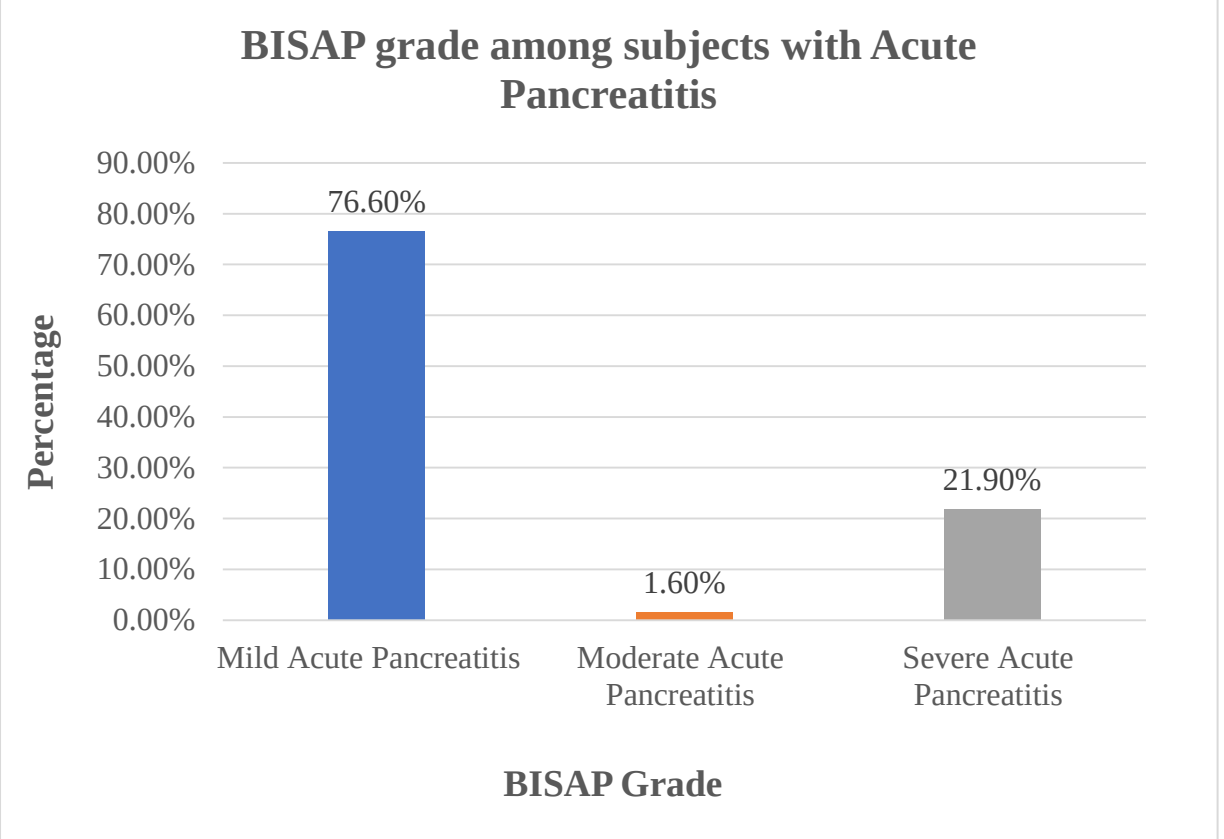

Figure 10: Bar diagram showing BISAP grade among subjects with Acute Pancreatitis

Table 4. JSS Grade among subjects with Acute Pancreatitis

		Count	%
JSS Grade	Mild Acute Pancreatitis	9	14.1%
	Moderate Acute Pancreatitis	16	25.0%
	Severe Acute Pancreatitis	39	60.9%
	Total	64	100.0%

Mean JSS grade was 4.02 ± 1.241. In the study according to JSS Score, 14.1% had mild, 25% had moderate and 60.9% had severe Acute Pancreatitis.

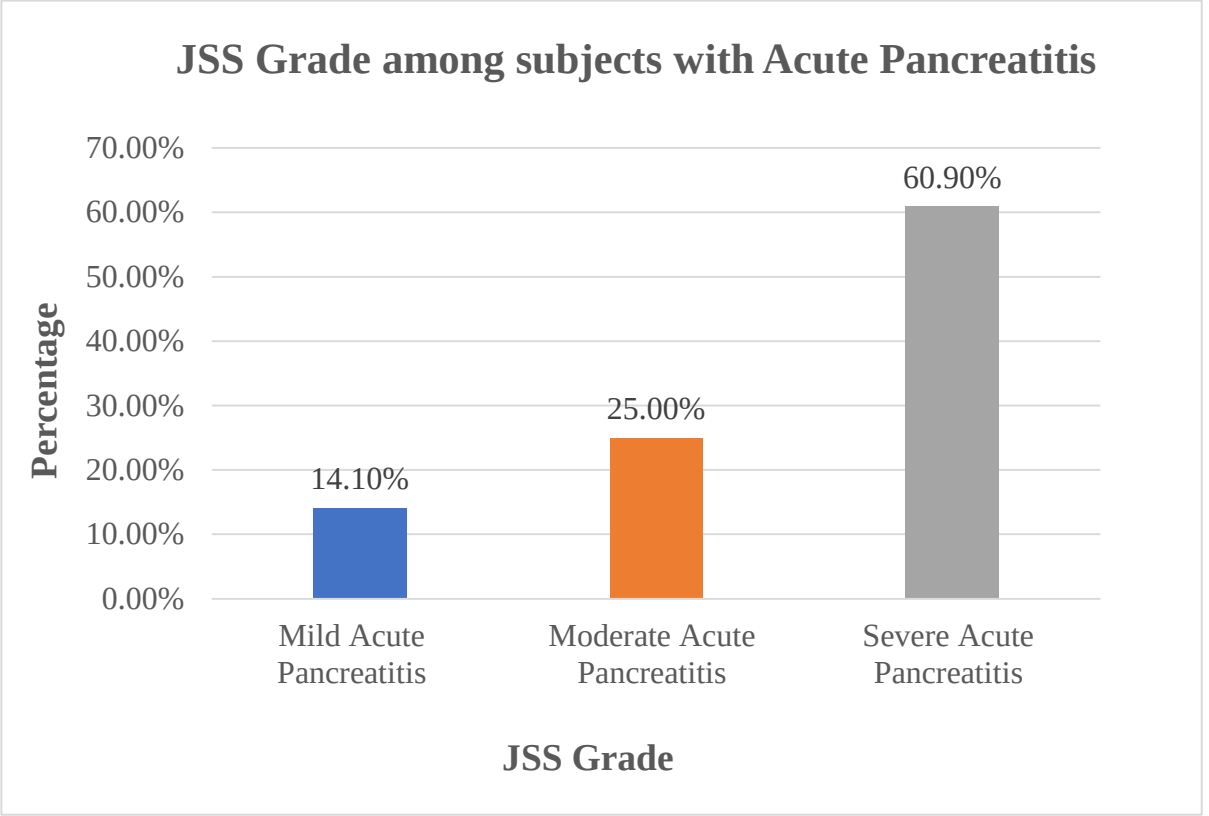

Figure 11: Bar diagram showing JSS Grade among subjects with Acute Pancreatitis

Table 5. Duration of SICU/ ICU Stay distribution

		Count	%
SICU Stay	1	5	7.8%
	2	22	34.4%
	3	27	42.2%
	4	7	10.9%
	5	3	4.7%
	Total	64	100.0%

Mean duration of SICU stay was 2.70 ± 0.937 days. Majority of subjects stayed in SICU for 3 days (42.2%).

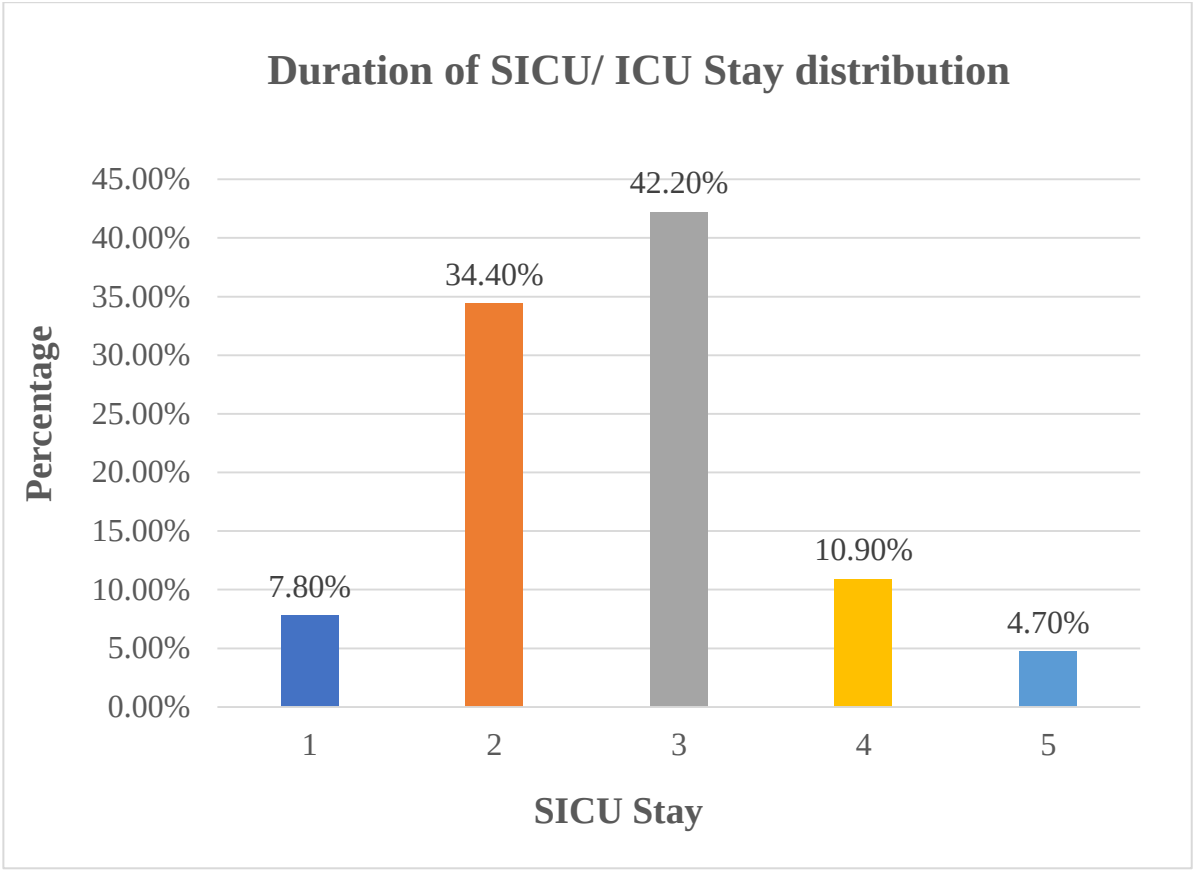

Figure 12: Bar diagram showing Duration of SICU/ ICU Stay distribution

Table 6. Somatostatin Analogue usage distribution

		Count	%
Somatostatin Analogue	No	6	9.4%
	Yes	58	90.6%
	Total	64	100.0%

In the study 90.6% were given Somatostatin Analogue and 9.4% did not receive Somatostatin Analogue.

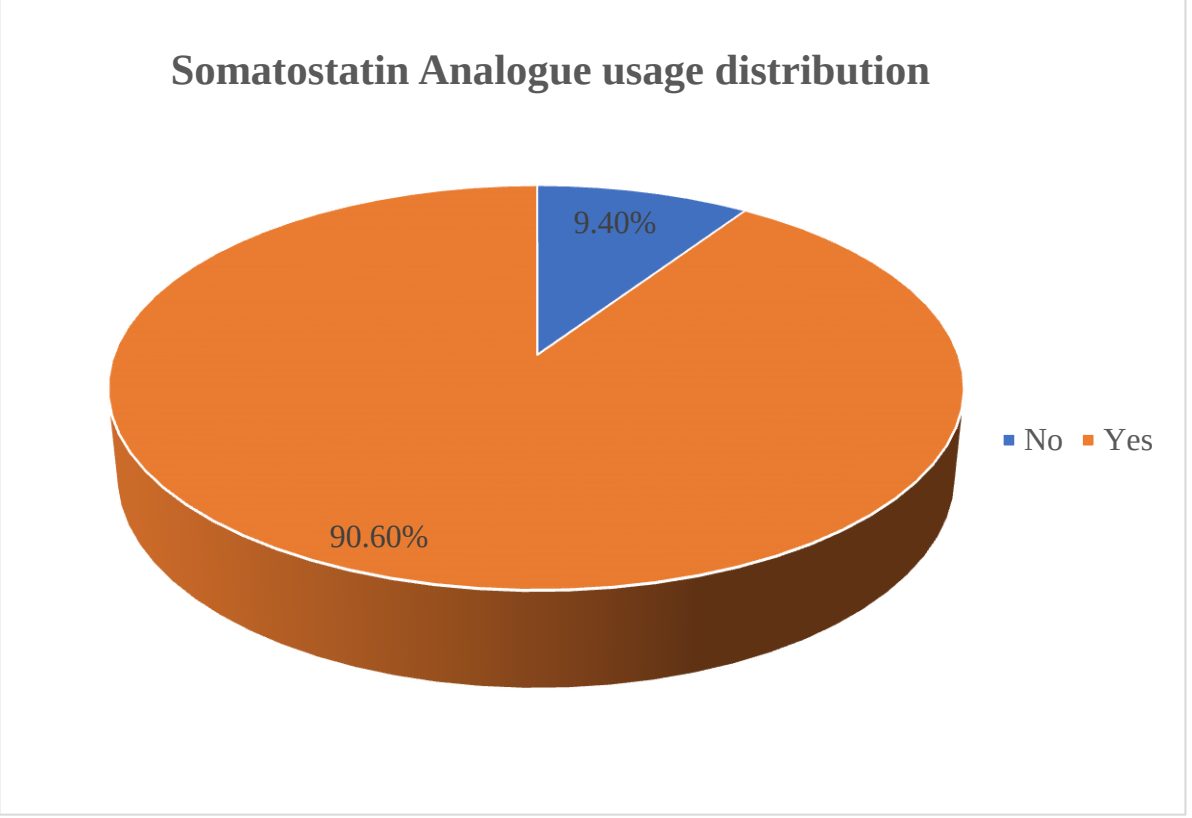

Figure 13: Pie diagram showing Somatostatin Analogue usage distribution

Table 7. Clinical Deterioration distribution

		Count	%
Clinical Deterioration	No	47	73.4%
	Yes	17	26.6%
	Total	64	100.0%

In the study 26.6% had Clinical Deterioration and 73.4% had no Clinical Deterioration.

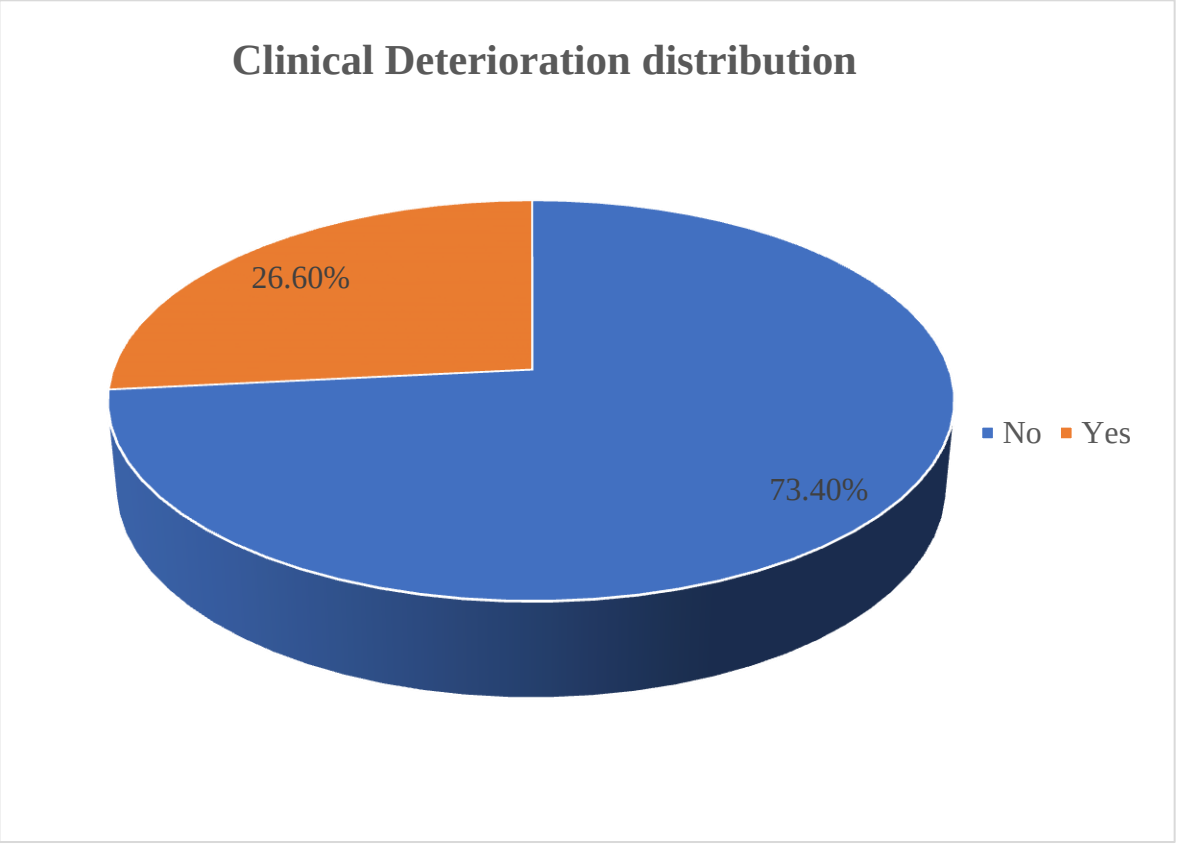

Figure 14: Pie diagram showing Clinical Deterioration distribution

Table 8. Organ Failure distribution

		Count	%
Organ Failure	AKI	3	4.7%
	ARDS	3	4.7%
	Necrotizing Pancreatitis	1	1.6%
	No	54	84.4%
	Yes	3	4.7%
	Total	64	100.0%

In the study 4.7% had AKI, ARDS and other organ failure respectively and 1.5% had Necrotizing Pancreatitis.

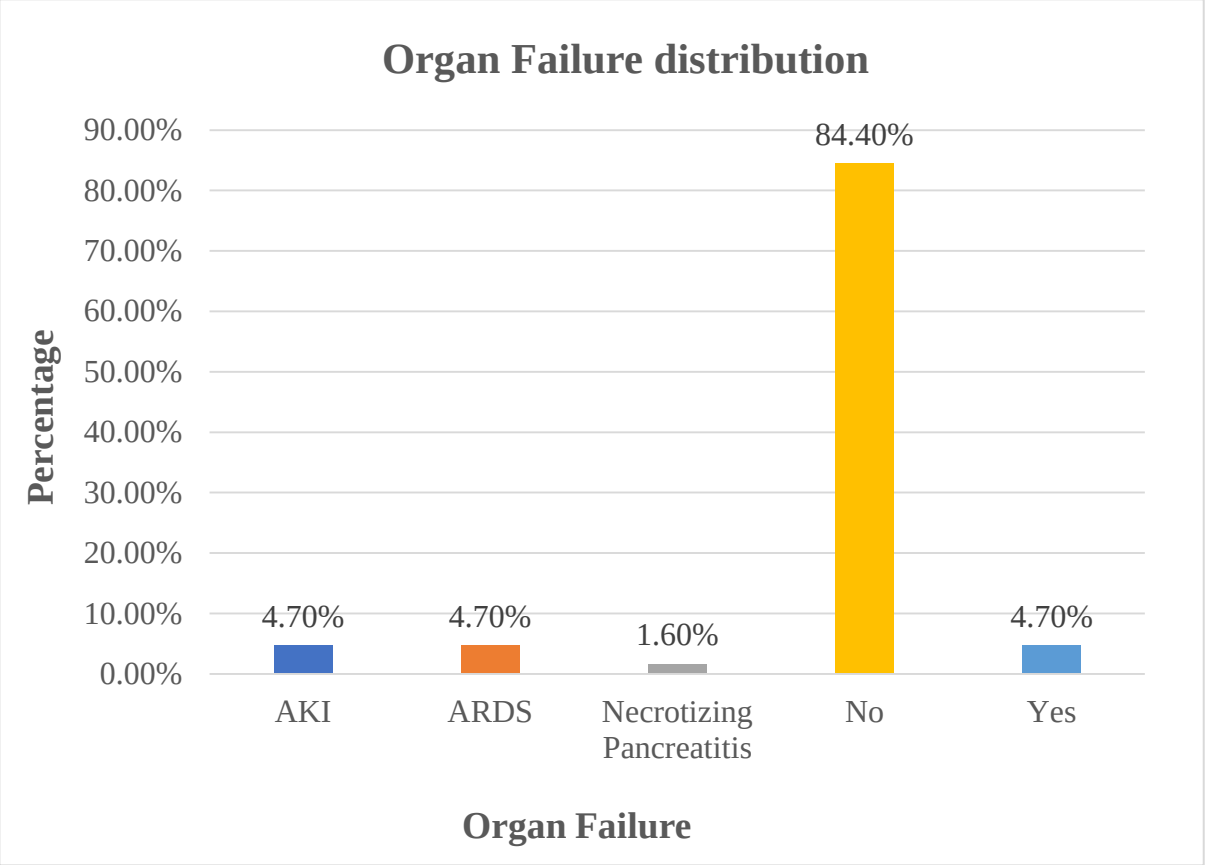

Figure 15: Bar diagram showing Organ Failure distribution

Table 9. Mortality distribution

		Count	%
Mortality	No	57	89.1%
	Yes	7	10.9%
	Total	64	100.0%

In the study 10.9% had mortality.

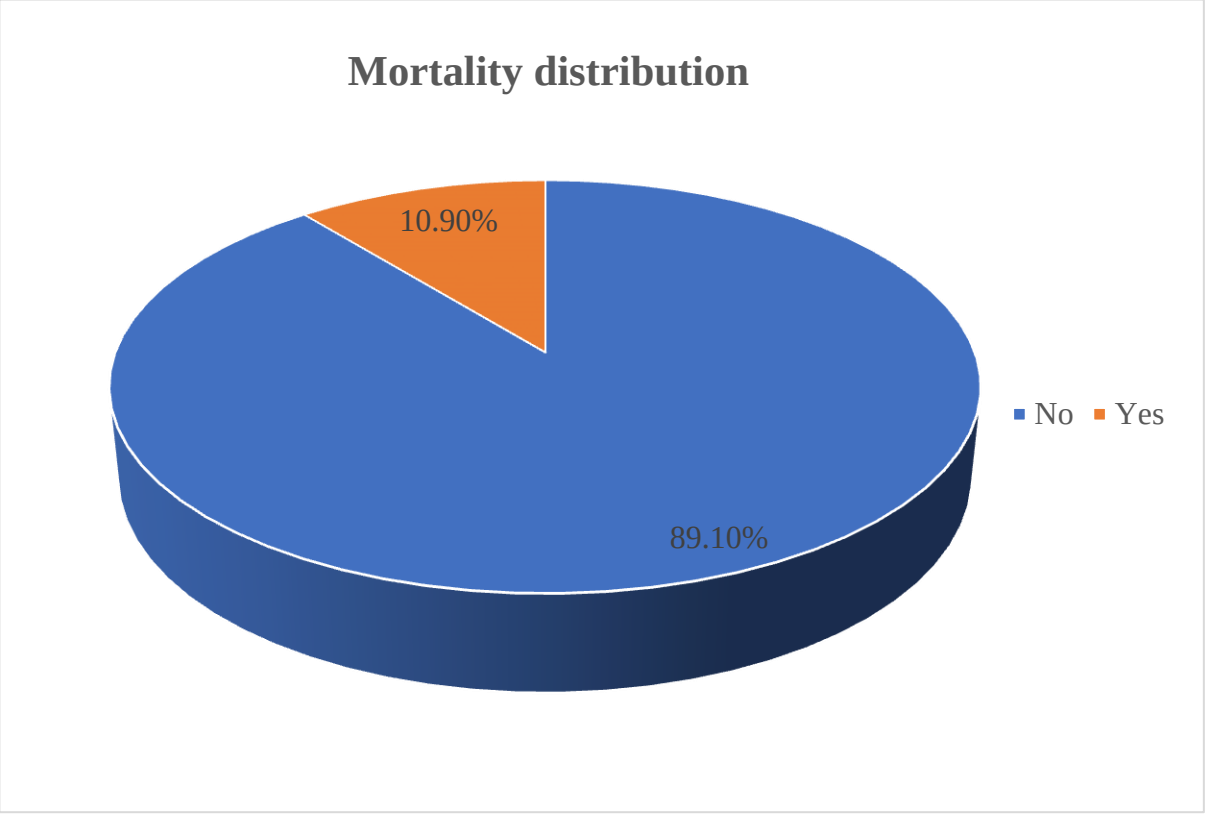

Figure 16: Pie diagram showing Mortality distribution

Table 10. Validity of BISAP Score in predicting outcome

Area under the ROC curve (AUC)

Area under the ROC curve (AUC)	0.722
Standard Error	0.0876
95% Confidence interval	0.596 to 0.827
z statistic	2.532
Significance level P (Area=0.5)	0.0113

Youden index

Youden index J	0.3609
Associated criterion	>2

BISAP score of >2 had highest sensitivity of 57.14%, specificity of 78.95%, PPV of 25% and NPV of 93.7% in predicting mortality among acute pancreatitis subjects.

Criterion values and coordinates of the ROC curve

Criterion	Sensitivity	95% CI	Specificity	95% CI	+PV	-PV
≥0	100.00	59.0 - 100.0	0.00	0.0 - 6.3	10.9	
>1	100.00	59.0 - 100.0	19.30	10.0 - 31.9	13.2	100.0
>2	**57.14**	**18.4 - 90.1**	**78.95**	**66.1 - 88.6**	**25.0**	**93.7**
>3	0.00	0.0 - 41.0	100.00	93.7 - 100.0		89.1

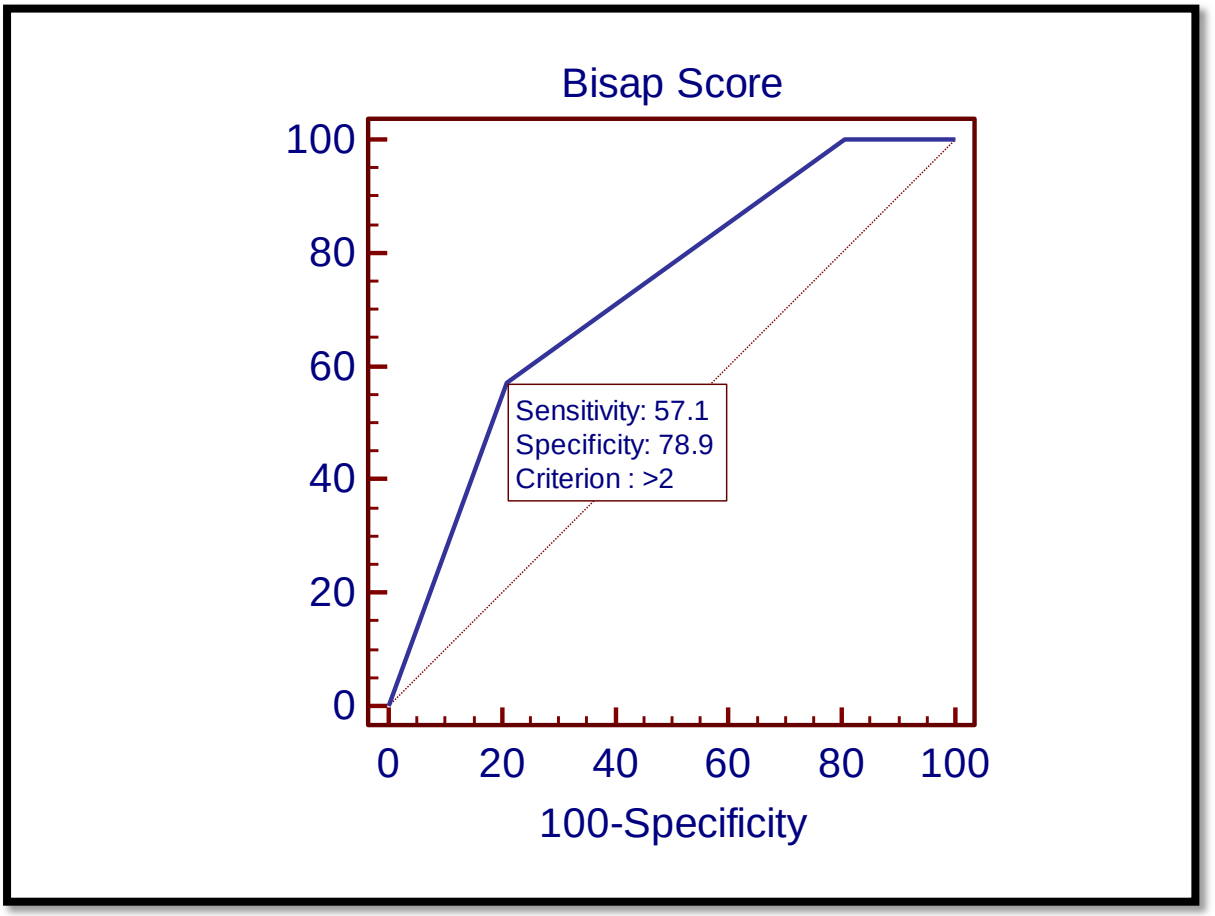

Figure 17: ROC curve showing Validity of BISAP Score in predicting outcome

Table 11. Validity of JSS Score in predicting outcome

Area under the ROC curve (AUC)

Area under the ROC curve (AUC)	0.643
Standard Error	0.102
95% Confidence interval	0.513 to 0.759
z statistic	1.407
Significance level P (Area=0.5)	0.1594

Youden index

Youden index J	0.2381
Associated criterion	>4

Criterion values and coordinates of the ROC curve

Criterion	Sensitivity	95% CI	Specificity	95% CI	+PV	-PV
≥1	100.00	59.0 - 100.0	0.00	0.0 - 6.3	10.9	
>2	100.00	59.0 - 100.0	14.04	6.3 - 25.8	12.5	100.0
>3	85.71	42.1 - 99.6	31.58	19.9 - 45.2	13.3	94.7
>4	**57.14**	**18.4 - 90.1**	**66.67**	**52.9 - 78.6**	**17.4**	**92.7**
>5	14.29	0.4 - 57.9	89.47	78.5 - 96.0	14.3	89.5
>6	0.00	0.0 - 41.0	100.00	93.7 - 100.0		89.1

JSS score of >4 had highest sensitivity of 57.14%, specificity of 66.67%, PPV of 17.4% and NPV of 92.7% in predicting mortality among acute pancreatitis subjects.

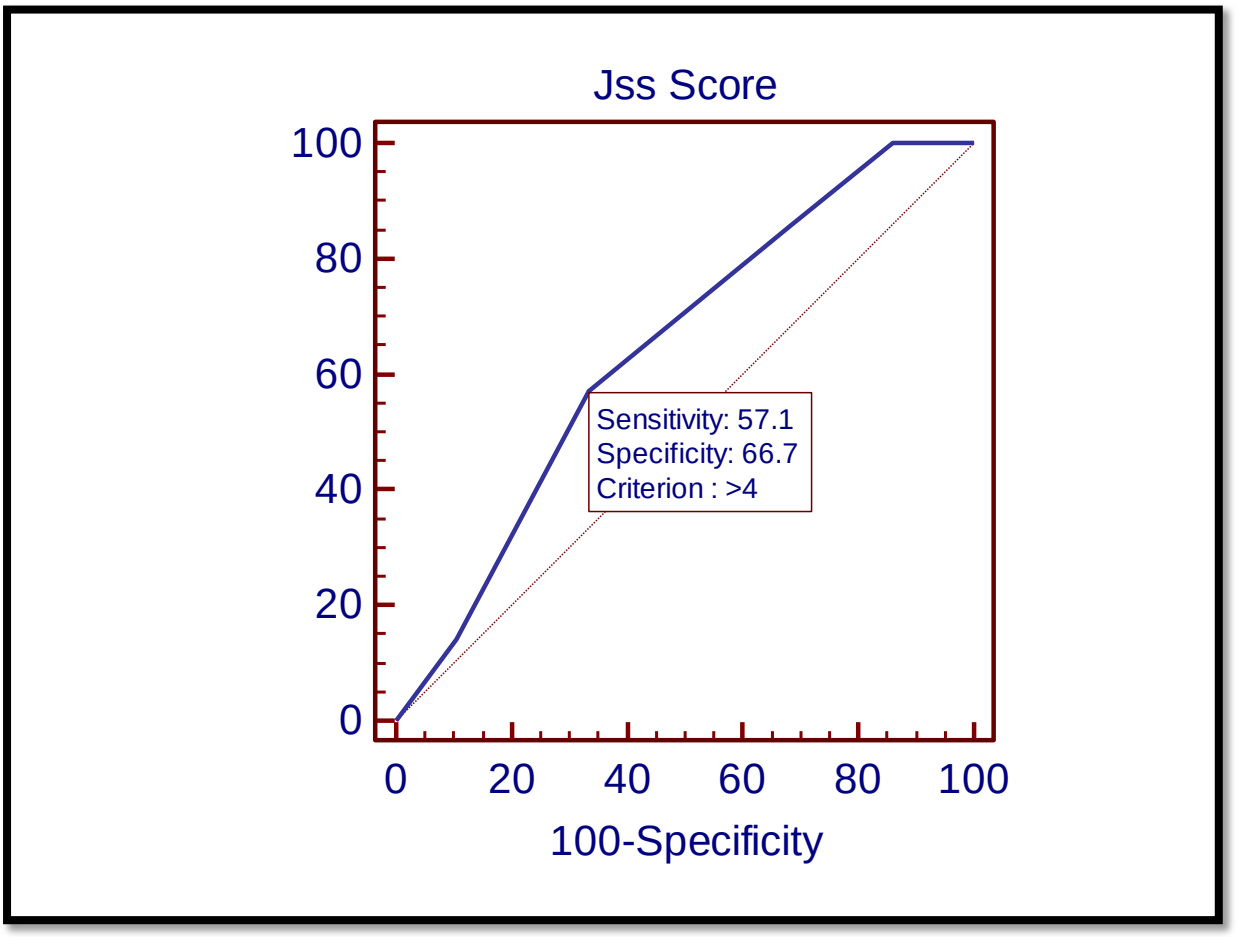

Figure 18: ROC Curve showing Validity of JSS Score in predicting outcome

From the above observations BISAP score had better validity in predicting mortality among acute pancreatitis compared to JSS score.

Table 12. Validity of BISAP Score in predicting Clinical deterioration

Area under the ROC curve (AUC)

Area under the ROC curve (AUC)	0.615
Standard Error	0.0770
95% Confidence interval	0.484 to 0.734
z statistic	1.487
Significance level P (Area=0.5)	0.1370

Youden index

Youden index J	0.2203
Associated criterion	>2

Criterion values and coordinates of the ROC curve

Criterion	Sensitivity	95% CI	Specificity	95% CI	+PV	-PV
≥0	100.00	80.5 - 100.0	0.00	0.0 - 7.5	26.6	
>0	94.12	71.3 - 99.9	2.13	0.05 - 11.3	25.8	50.0
>1	88.24	63.6 - 98.5	19.15	9.1 - 33.3	28.3	81.8
>2	**41.18**	**18.4 - 67.1**	**80.85**	**66.7 - 90.9**	**43.7**	**79.2**
>3	0.00	0.0 - 19.5	100.00	92.5 - 100.0		73.4

BISAP score of >2 had highest sensitivity of 41.18%, specificity of 80.85%, PPV of 43.7% and NPV of 79.2% in predicting clinical deterioration among acute pancreatitis subjects.

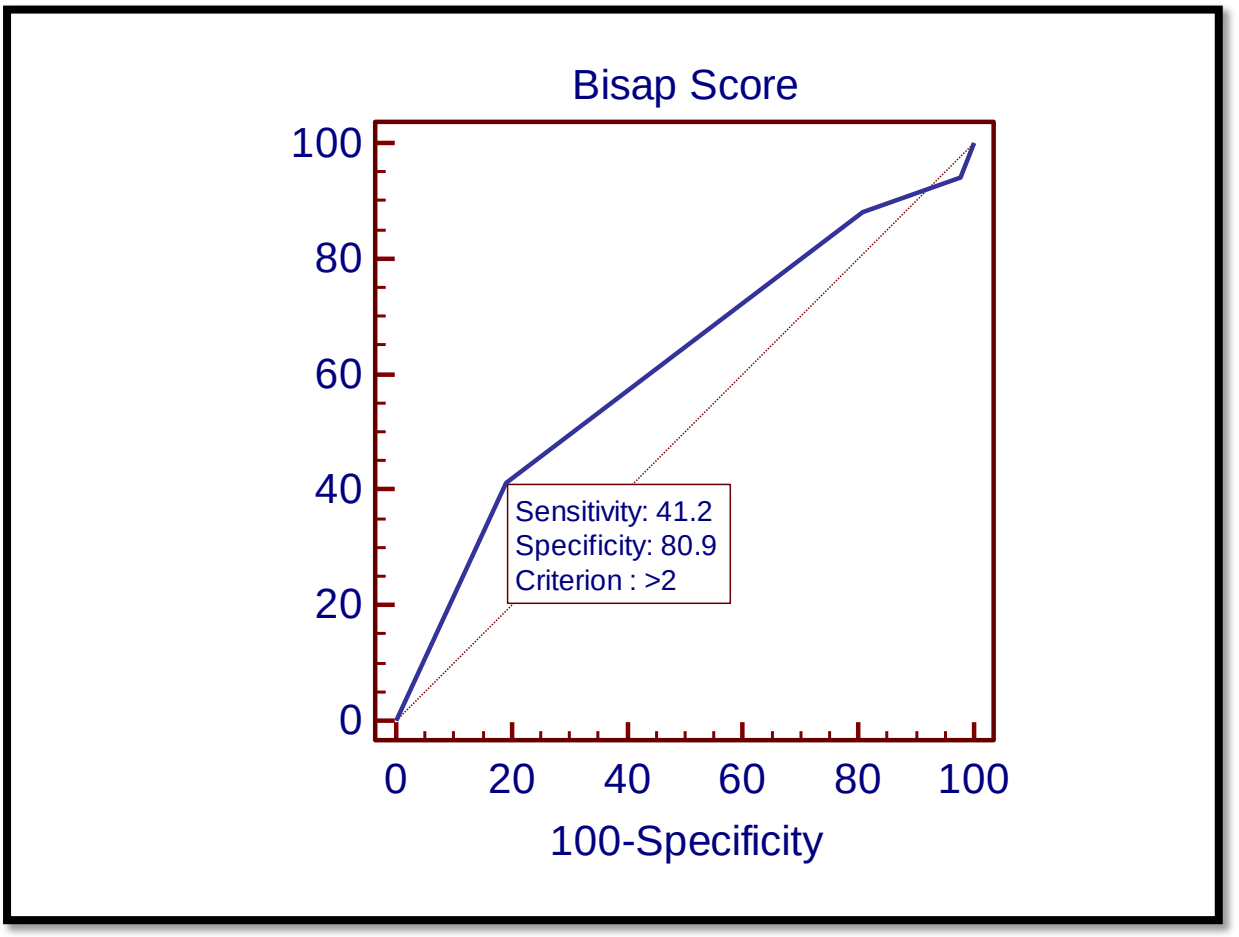

Figure 19: ROC curve showing Validity of BISAP Score in predicting Clinical deterioration

Table 13. Validity of JSS Score in predicting Clinical deterioration

Area under the ROC curve (AUC)

Area under the ROC curve (AUC)	0.577
Standard Error	0.0824
95% Confidence interval	0.447 to 0.700
z statistic	0.934
Significance level P (Area=0.5)	0.3501

Youden index

Youden index J	0.1514
Associated criterion	>4

Criterion values and coordinates of the ROC curve

Criterion	Sensitivity	95% CI	Specificity	95% CI	+PV	-PV
≥1	100.00	80.5 - 100.0	0.00	0.0 - 7.5	26.6	
>1	100.00	80.5 - 100.0	4.26	0.5 - 14.5	27.4	100.0
>2	94.12	71.3 - 99.9	14.89	6.2 - 28.3	28.6	87.5
>3	70.59	44.0 - 89.7	29.79	17.3 - 44.9	26.7	73.7
>4	**47.06**	**23.0 - 72.2**	**68.09**	**52.9 - 80.9**	**34.8**	**78.0**
>5	17.65	3.8 - 43.4	91.49	79.6 - 97.6	42.9	75.4
>6	0.00	0.0 - 19.5	100.00	92.5 - 100.0		73.4

JSS score of >2 had highest sensitivity of 47.06%, specificity of 68.09%, PPV of 34.8% and NPV of 78% in predicting clinical deterioration among acute pancreatitis subjects.

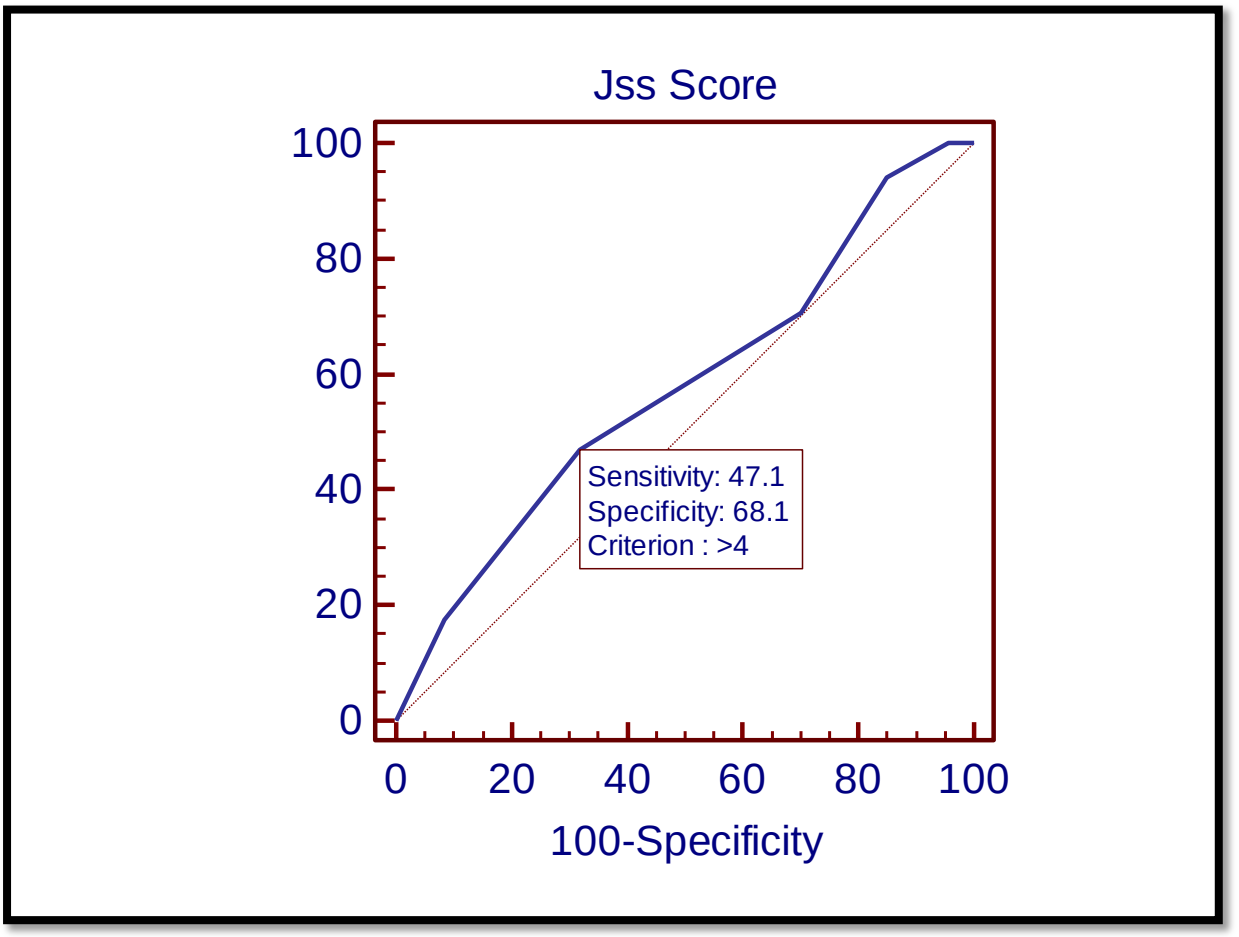

Figure 20: ROC Curve showing Validity of JSS Score in predicting Clinical deterioration

From the above observations BISAP score had better validity in predicting clinical deterioration among acute pancreatitis compared to JSS score.

Hence BISAP score was better than JSS score in predicting Severity of Acute pancreatitis.

DISCUSSION

DISCUSSION

Acute pancreatitis is a common disease entity. The early identification of potentially severe acute pancreatitis enables the selection of patients who may require more intensive and invasive method of management than are appropriate in mild pancreatitis.

While diagnosing a case of acute pancreatitis, a through history, a complete physical examination and biochemical tests are necessary. Radiological conformation may require. The present study was conducted to compare BISAP score and JAPANESE score in assessing the severity of Acute Pancreatitis.

COMPARISON OF AGE:

The mean age of presentation in our study was 38.58 ± 14.18 years and is comparable to the study by Kashid A et al[22]. Other studies had late presentation in the 5th and 6th decade. The age distribution can be attributed to alcohol intake in middle age which is one of the was important etiological factor for Acute pancreatitis.

Table 14: Comparison of age:

Mean Age	Kashid A et al[22]	Choudhuri G et al[23]	Pupelis G et al[12] (n=274)	Present study (n=64)
Mean age in Years	35	44.8	47	38.58

COMPARISON OF SEX:

There was male predominance in our study with males accounting for 95.3%. Out of 64 patients 61 (95.3%) were male and 3 (4.7%) were female. The other studies also had a higher percentage of males. This could be attributed to alcohol which was the main etiologic agent in our society.

Table 15: Comparison of sex

Mean Age	Kashi A et al[22]	Choudhur G et al[23]	Pupelis G et al[12](n=274)	Our study (n=64)
Male %	70.91	66.6	73.7	95.3
Female%	29.09	33.4	26.3	4.7

HOSPITAL STAY/SICU stay

Mean duration of hospital stay in our study was 2.70 days; however, studies showed higher duration of hospital stay or SICU stay such as study by Choudhuri G et al[23] and Kashid A et al[22]

Table 16: Hospital stay

Mean Hospital stay	Kashid Aet al[22]	Choudhuri G et al[23]	Our study (n=64)
In days	10	6.6	2.7

MORTALITY

Mortality in our study was 10.9%, it was higher compared to the study by Buchler MW et al[24], Choudhuri G et al[23] and Kashid A et al[22].

Table 17: Mortality

Mortality	Kashid A et al[22]	Choudhuri G et al[23]	Buchler MW et al[24] (n=86)	Our study (n=64)
Percentage	5.45	6.5	3.4	10.9

Bisap Score:

In the present study BISAP score of >2 had highest sensitivity of 57.14%, specificity of 78.95%, PPV of 25% and NPV of 93.7% in predicting mortality among acute pancreatitis subjects.

BISAP score of >2 had highest sensitivity of 41.18%, specificity of 80.85%, PPV of 43.7% and NPV of 79.2% in predicting clinical deterioration among acute pancreatitis subjects.

In the study by **Lifen Chen et al**[25]**,** Bishop score of 3 had highest sensitivity of 83.3%, specificity of 67.4%, PPV of 25.6% and NPV of 96.8% in predicting mortality among acute pancreatitis subjects and in predicting clinical deterioration, Bisap score at 2 had highest sensitivity of 93.1%, specificity of 51.4%, PPV of 43.5% and NPV of 94.9%. This study showed higher sensitivity and lower specificity that the present study, however NPV and PPV was similar to the present study.

A study by **Papachristou et al**[26] reported that with the cutoff value set at 3, BISAP score had a sensitivity of 37.5%, a specificity of 92.4%, a PPV of 57.7%, and an NPV of 84.3% in predicting SAP. The findings were similar to the present study were in low sensitivity and higher specificity was observed.

Several factors may contribute to these differences. First, there are differences in the characteristics of study participants, such as race, lifestyle, and genetic basis. In addition, etiologic distribution may also explain the noted differences.

JSS Score:

In the present study JSS score of >4 had highest sensitivity of 57.14%, specificity of 66.67%, PPV of 17.4% and NPV of 92.7% in predicting mortality among acute pancreatitis subjects. Area under the curve was 0.643. JSS score of >2 had highest sensitivity of 47.06%, specificity of 68.09%, PPV of 34.8% and NPV of 78% in predicting clinical deterioration among acute pancreatitis subjects.

In the study by **Senol K et al.,**[27] the optimum cut off level of the new JSS was 5 or higher. Sensitivity, specificity, positive predictive value, and negative predictive value in the new JSS were 72.8%, 60.5%, 69%, and 69.9%, respectively in predicting the outcome. The findings were close to the present study.

In the study by **Hamada T et al.**,[28] JSS score at Cut off 2 had Area under the curve of 0.798 for prediction of in-hospital mortality. The finding was differencing from the present study were in cut off was 4 and AUC was 0.643.

CONCLUSION

CONCLUSION

From the study it can be concluded that BISAP score was better than JSS score in predicting Severity of Acute pancreatitis (Mortality and Clinical deterioration). BISAP scoring system is very simple, cheap, easy to remember and calculate. BISAP scoring system accurately predicts the outcome in patients with acute pancreatitis. Moreover, the values in BISAP score are instantaneous and there is no time delay.

SUMMARY

SUMMARY

1. The study includes a total of 64 patients of acute pancreatitis. 61 males and 3 females.
2. The peak incidence in male and in female 4th decade in life.
3. All the patients were admitted in SICU or ICU and managed conservatively.
4. Mean BISAP grade was 2.05 ± 0.722. In the study according to BISAP Score, 76.6% had mild, 1.6% had moderate and 21.9% had severe Acute Pancreatitis.
5. Mean JSS grade was 4.02 ± 1.241. In the study according to JSS Score, 14.1% had mild, 25% had moderate and 60.9% had severe Acute Pancreatitis.
6. Mean duration of SICU stay was 2.70 ± 0.937 days. Majority of subjects stayed in SICU for 3 days (42.2%).
7. 90.6% of subjects were given Somatostatin Analogue
8. 26.6% of subjects had Clinical Deterioration
9. 4.7% had AKI, ARDS and other organ failure respectively and 1.5% had Necrotizing Pancreatitis
10. 10.9% had mortality in the present study.
11. BISAP score at >2 had better validity in predicting mortality among acute pancreatitis compared to JSS score.
12. BISAP score at >2 had better validity in predicting clinical deterioration among acute pancreatitis compared to JSS score.

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ANNEXURE

ANNEXURE-1

PROFORMA:

NAME: **DOA:**

AGE: **DOD:**

SEX: **IP/OP NO:**

RELIGION: **UNIT NO:**

EDUCATION:

OCCUPATION:

ADDRESS:

- **CHIEF COMPLAINTS:**

  PAIN

  VOMITING/NAUSEA

  FEVER

  DIARRHEA/CONSTIPATION

  DISTENTION OF ABDOMEN

  OTHER COMPLAINTS

- **HISTORY OF PRESENTING ILLNESS:**

- **PREVIOUS HISTORY:**

  OF SIMILAR COMPLAINTS

  INGESTION OF DRUGS

- **PERSONAL HISTORY**

  DIET

  APPETITE

  SMOKING

  ALCOHOL

  BOWEL HABITS

  MENSTRUAL HISTORY

- **FAMILY HISTORY:**

- **GENERAL PHYSICAL EXAMINATION:**

  APPEARANCE

  ATTITUDE

  BUILT AND NOURISHMENT

  LEVEL OF CONSCIOUSNESS

  DEHYDRATION

- **VITALS DATA:**

  TEMPERATURE:

  PULSE:

  BP:

  RR:

PALLOR: YES, OR NO

ICTERUS: YES, OR NO

CLUBBING: YES, OR NO

CYANOSIS: YES, OR NO

LYMPHADENOPATHY: YES, OR NO

EDEMA: YES, OR NO

- **SYSTEMIC EXAMINATION:**

PER ABDOMEN:

RESPIRATORY SYSTEM:

CARDIOVASCULAR SYSTEM:

CENTRAL NERVOUS SYSTEM:

- **BISAP SCORE:** (One point for each positive criterion)

1. BUN > 25 mg/dl
2. Impaired mental status (glasgow coma scale score < 15)
3. SIRS-defined as two or more of the following:
    A) Temperature of < 36 or > 38 ° c
    B) respiratory rate > 20 breaths/min or paco2 < 32 mm hg
    C) pulse > 90 beats/min
    D) wbc < 4,000 or >12,000 cells/mm3 or >10% immature bands.
4. Age > 60 years
5. pleural effusion detected on imaging

TOTAL SCORE:

JAPENESE SEVERITY SCORE: (One point for each positive criterion)

1. Base excess ≤ 3 meq/l or shock (systolic blood pressure<80 mmhg)
2. Pao_2≤ 60 mmhg (room air) or respiratory failure (respirator management is needed)
3. Bun ≥ 40 mg/dl (or cr ≥ 2.0 mg/dl) or oliguria (daily urine output < 400 ml even after iv fluid resuscitation)
4. Ldh ≥ 2 times of upper limit of normal
5. Platelet count ≤ 100,000/mm3
6. Serum ca ≤ 7.5 mg/dl
7. Crp ≥ 15 mg/dl
8. Number of positive measures in sirs criteria ≥3
9. Age ≥ 70 years

TOTAL SCORE:

OUTCOME OF THE PATIENT:

- MORBIDITY/MORTALITY
- FOLLOW UP FOR 7 DAYS DURING 1ST MONTH
- FOLLOW UP EVERY 15 DAYS DURING 2ND MONTHS
- FOLLOW UP EVERY 1 MONTH FOR 3 MONTHS

ANNEXURE-2

PATIENT INFORMATION SHEET:

Study title: "A COMPARATIVE STUDY BETWEEN BISAP SCORE AND JAPANESE SCORE FOR PREDICTING THE SEVERITY IN ACUTE PANCREATITIS."

Study location: R L Jalappa Hospital and Research Centre attached to Sri Devaraj Urs Medical College, Tamaka, Kolar.

Details: Patients diagnosed to have acute pancreatitis admitted to general surgery department of R. L. Jalappa Hospital will be included in this study.

Patients in this study will be assessed based on the clinical examination and will undergo blood and radiological investigation like complete haemogram, renal function test, random blood sugar, serum amylase, serum calcium, lactate dehydrogenase, C-reactive protein, arterial blood gas analysis, chest X-ray (PA view), X-ray erect abdomen, ultrasound abdomen and pelvis as required. Standard of care of the patient will be maintained throughout the study.

Information about acute pancreatitis and the objectives of the study:

1. It is an inflammatory process of the pancreas having various complications which have increased mortality risk.
2. Complications like pancreatic necrosis, severe systemic inflammatory response and multi-organ failure are seen in severe form of acute pancreatitis. This is associated with increased rate of mortality.
3. Many studies have shown that BISAP and JAPANESE scoring systems helps in assessment of the severity in acute pancreatitis and timely management helps in reducing the mortality.
4. In this study the patients will be segregated on odd-even basis in 2 groups. In group 1

and group 2 the severity will be scored by using BISAP and JAPANESE scoring system respectively.

5. After assessing the scores, further plan of management/treatment will be decided.
6. If the severity scoring is not done, the probabilities of missing on the grievous signs are increased. Thus, prior management of the above-mentioned complications cannot be initiated and may put life at risk.
7. All the relevant data and outcome of the scoring systems will be collected and documented, which will only be used for dissertation and publication.

Please read the above information and discuss with your family members. You can ask any question regarding the study. If you agree to participate in the study, we will collect information (as per proforma) from you or a person responsible for you or both. Relevant history will be taken.

All information collected from you will be kept confidential and will not be disclosed to any outsider.

Your identity will not be revealed. This study has been reviewed by the Institutional Ethics Committee and you are free to contact the member of the Institutional Ethics Committee. There is no compulsion to agree to this study. The care you will get will not change if you don't wish to participate. You are required to sign/ provide thumb impression only if you voluntarily agree to participate in this study.

For further information, contact

Patient's signature/thumb impression

Dr. Tushar Dave (Post graduate)
Mobile No - 9769693716
Department of General Surgery
SDUMC, Kolar

Witness signature/thumb impression

ರೋಗಿಯ ಮಾಹಿತಿ ಹಾಳೆ:

ಅಧ್ಯಯನದ ಶೀರ್ಷಿಕೆ: "ಬಿಸಾಪ್ ಸ್ಕೋರ್ ಮತ್ತು ಜಪಾನೀಸ್ ಸ್ಕೋರ್ ನಡುವೆ ಹೋಲಿಕೆ ಅಧ್ಯಯನವು ತೀವ್ರವಾದ ಪ್ಯಾಂಕ್ರಿಯಾಟಿಸ್‌ನಲ್ಲಿನ ತೀವ್ರತೆಯನ್ನು ಮುನ್ಸೂಚಿಸಲು."

ಅಧ್ಯಯನದ ಸ್ಥಳ: ಕೋಲಾರ್‌ನ ತಮಾಕಾದ ಶ್ರೀ ದೇವರಾಜ್ ಉರ್ಸ್ ವೈದ್ಯಕೀಯ ಕಾಲೇಜಿಗೆ ಲಗತ್ತಿಸಲಾದ ಆರ್ ಎಲ್ ಜಲಪ್ಪ ಆಸ್ಪತ್ರೆ ಮತ್ತು ಸಂಶೋಧನಾ ಕೇಂದ್ರ.

ವಿವರಗಳು: ಆರ್. ಎಲ್. ಜಲಪ್ಪ ಆಸ್ಪತ್ರೆಯ ಸಾಮಾನ್ಯ ಶಸ್ತ್ರಚಿಕಿತ್ಸೆ ವಿಭಾಗಕ್ಕೆ ದಾಖಲಾದ ತೀವ್ರವಾದ ಪ್ಯಾಂಕ್ರಿಯಾಟೈಟಿಸ್ ರೋಗನಿರ್ಣಯ ಮಾಡಿದ ರೋಗಿಗಳನ್ನು ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಸೇರಿಸಲಾಗುವುದು.

ಈ ಅಧ್ಯಯನದ ರೋಗಿಗಳನ್ನು ಕ್ಲಿನಿಕಲ್ ಪರೀಕ್ಷೆಯ ಆಧಾರದ ಮೇಲೆ ನಿರ್ಣಯಿಸಲಾಗುತ್ತದೆ ಮತ್ತು ಸಂಪೂರ್ಣ ಹೆಮೋಗ್ರಾಮ್, ಮೂತ್ರಪಿಂಡದ ಕಾರ್ಯ ಪರೀಕ್ಷೆ, ಯಾದೃಚ್ blood ಿಕ ರಕ್ತದಲ್ಲಿನ ಸಕ್ಕರೆ, ಸೀರಮ್ ಅಮೈಲೇಸ್, ಸೀರಮ್ ಕ್ಯಾಲ್ಸಿಯಂ, ಲ್ಯಾಕ್ಟೇಟ್ ಡಿಹೈಡ್ರೋಜಿನೇಸ್, ಸಿ-ರಿಯಾಕ್ಟಿವ್ ಪ್ರೋಟೀನ್, ಅಪಧಮನಿಯ ರಕ್ತ ಅನಿಲ ವಿಶ್ಲೇಷಣೆ, ಎದೆಯ ಎಕ್ಸರೆ (ಪಿಎ ವ್ಯೂ), ಎಕ್ಸರೆ ನೆಟ್ಟಗೆ ಹೊಟ್ಟೆ, ಅಲ್ಟ್ರಾಸೌಂಡ್ ಹೊಟ್ಟೆ ಮತ್ತು ಸೊಂಟವನ್ನು ಅಗತ್ಯವಿರುವಂತೆ. ರೋಗಿಯ ಆರೈಕೆಯ ಗುಣಮಟ್ಟವನ್ನು ಅಧ್ಯಯನದ ಉದ್ದಕ್ಕೂ ನಿರ್ವಹಿಸಲಾಗುವುದು.

ತೀವ್ರವಾದ ಪ್ಯಾಂಕ್ರಿಯಾಟೈಟಿಸ್ ಮತ್ತು ಅಧ್ಯಯನದ ಉದ್ದೇಶಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿ:

1. ಇದು ಮೇದೋಜ್ಜೀರಕ ಗ್ರಂಥಿಯ ಉರಿಯೂತದ ಪ್ರಕ್ರಿಯೆಯಾಗಿದ್ದು, ಇದು ಹಲವಾರು ತೊಡಕುಗಳನ್ನು ಹೊಂದಿದ್ದು ಸಾವಿನ ಅಪಾಯವನ್ನು ಹೆಚ್ಚಿಸುತ್ತದೆ.

2. ಪ್ಯಾಂಕ್ರಿಯಾಟಿಕ್ ನೆಕ್ರೋಸಿಸ್, ತೀವ್ರವಾದ ವ್ಯವಸ್ಥಿತ ಉರಿಯೂತದ ಪ್ರತಿಕ್ರಿಯೆ ಮತ್ತು ಬಹು-ಅಂಗಗಳ ವೈಫಲ್ಯದಂತಹ ತೊಂದರೆಗಳು ತೀವ್ರವಾದ ಪ್ಯಾಂಕ್ರಿಯಾಟೈಟಿಸ್ನ ತೀವ್ರ ರೂಪದಲ್ಲಿ ಕಂಡುಬರುತ್ತವೆ. ಇದು ಮರಣ ಪ್ರಮಾಣ ಹೆಚ್ಚಳಕ್ಕೆ ಸಂಬಂಧಿಸಿದೆ.

3. ತೀವ್ರವಾದ ಪ್ಯಾಂಕ್ರಿಯಾಟೈಟಿಸ್‌ನಲ್ಲಿನ ತೀವ್ರತೆಯನ್ನು ನಿರ್ಣಯಿಸಲು ಬಿಸಾಪ್ ಮತ್ತು ಜಪಾನೀಸ್ ಸ್ಕೋರಿಂಗ್ ವ್ಯವಸ್ಥೆಗಳು ಸಹಾಯ ಮಾಡುತ್ತವೆ ಮತ್ತು ಸಮಯೋಚಿತ ನಿರ್ವಹಣೆ ಮರಣ ಪ್ರಮಾಣವನ್ನು ಕಡಿಮೆ ಮಾಡಲು ಸಹಾಯ ಮಾಡುತ್ತದೆ ಎಂದು ಅನೇಕ ಅಧ್ಯಯನಗಳು ತೋರಿಸಿವೆ.

4. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ರೋಗಿಗಳನ್ನು 2 ಗುಂಪುಗಳಲ್ಲಿ ಬೆಸ-ಸಮ ಆಧಾರದಲ್ಲಿ ಬೇರ್ಪಡಿಸಲಾಗುತ್ತದೆ. ಗುಂಪು 1 ಮತ್ತು ಗುಂಪು 2 ರಲ್ಲಿ ಕ್ರಮವಾಗಿ ಬಿಸಾಪ್ ಮತ್ತು ಜಪಾನೀಸ್ ಸ್ಕೋರಿಂಗ್ ವ್ಯವಸ್ಥೆಯನ್ನು ಬಳಸಿಕೊಂಡು ತೀವ್ರತೆಯನ್ನು ಗಳಿಸಲಾಗುತ್ತದೆ.

5. ಅಂಕಗಳನ್ನು ನಿರ್ಣಯಿಸಿದ ನಂತರ, ನಿರ್ವಹಣೆ / ಚಿಕಿತ್ಸೆಯ ಮುಂದಿನ ಯೋಜನೆಯನ್ನು ನಿರ್ಧರಿಸಲಾಗುತ್ತದೆ.

6. ತೀವ್ರತೆಯ ಸ್ಕೋರಿಂಗ್ ಮಾಡದಿದ್ದರೆ, ತೀವ್ರವಾದ ಚಿಹ್ನೆಗಳಲ್ಲಿ ಕಾಣೆಯಾಗುವ ಸಂಭವನೀಯತೆಗಳು ಹೆಚ್ಚಾಗುತ್ತವೆ. ಆದ್ದರಿಂದ, ಮೇಲೆ ತಿಳಿಸಿದ ತೊಡಕುಗಳ ಪೂರ್ವ ನಿರ್ವಹಣೆಯನ್ನು ಪ್ರಾರಂಭಿಸಲಾಗುವುದಿಲ್ಲ ಮತ್ತು ಜೀವಕ್ಕೆ ಅಪಾಯವಿದೆ.

7. ಸ್ಕೋರಿಂಗ್ ವ್ಯವಸ್ಥೆಗಳ ಎಲ್ಲಾ ಸಂಬಂಧಿತ ಡೇಟಾ ಮತ್ತು ಫಲಿತಾಂಶಗಳನ್ನು ಸಂಗ್ರಹಿಸಿ ದಾಖಲಿಸಲಾಗುತ್ತದೆ, ಇದನ್ನು ಪ್ರಬಂಧ ಮತ್ತು ಪ್ರಕಟಣೆಗೆ ಮಾತ್ರ ಬಳಸಲಾಗುತ್ತದೆ.

ದಯವಿಟ್ಟು ಮೇಲಿನ ಮಾಹಿತಿಯನ್ನು ಓದಿ ಮತ್ತು ನಿಮ್ಮ ಕುಟುಂಬ ಸದಸ್ಯರೊಂದಿಗೆ ಚರ್ಚಿಸಿ. ಅಧ್ಯಯನಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ ನೀವು ಯಾವುದೇ ಪ್ರಶ್ನೆಯನ್ನು ಕೇಳಬಹುದು. ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನೀವು ಒಪ್ಪಿದರೆ, ನಿಮ್ಮಿಂದ ಅಥವಾ ನಿಮ್ಮ ಅಥವಾ ಇಬ್ಬರ ಜವಾಬ್ದಾರಿಯುತ ವ್ಯಕ್ತಿಯಿಂದ ನಾವು ಮಾಹಿತಿಯನ್ನು (ಪ್ರೊಫಾರ್ಮಾದ ಪ್ರಕಾರ) ಸಂಗ್ರಹಿಸುತ್ತೇವೆ. ಸಂಬಂಧಿತ ಇತಿಹಾಸವನ್ನು ತೆಗೆದುಕೊಳ್ಳಲಾಗುವುದು.

ನಿಮ್ಮಿಂದ ಸಂಗ್ರಹಿಸಲಾದ ಎಲ್ಲಾ ಮಾಹಿತಿಯನ್ನು ಗೌಪ್ಯವಾಗಿಡಲಾಗುತ್ತದೆ ಮತ್ತು ಯಾವುದೇ ಹೊರಗಿನವರಿಗೆ ಬಹಿರಂಗಪಡಿಸುವುದಿಲ್ಲ.

ನಿಮ್ಮ ಗುರುತು ಬಹಿರಂಗಗೊಳ್ಳುವುದಿಲ್ಲ. ಈ ಅಧ್ಯಯನವನ್ನು ಸಾಂಸ್ಥಿಕ ನೈತಿಕ ಸಮಿತಿಯು ಪರಿಶೀಲಿಸಿದೆ ಮತ್ತು ನೀವು ಸಾಂಸ್ಥಿಕ ನೈತಿಕ ಸಮಿತಿಯ ಸದಸ್ಯರನ್ನು ಸಂಪರ್ಕಿಸಲು ಮುಕ್ತರಾಗಿದ್ದೀರಿ. ಈ ಅಧ್ಯಯನವನ್ನು ಒಪ್ಪಿಕೊಳ್ಳಲು ಯಾವುದೇ ಬಲವಂತವಿಲ್ಲ. ನೀವು ಭಾಗವಹಿಸಲು ಬಯಸದಿದ್ದರೆ ನೀವು ಪಡೆಯುವ ಕಾಳಜಿ ಬದಲಾಗುವುದಿಲ್ಲ. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಭಾಗವಹಿಸಲು ನೀವು ಸ್ವಯಂಪ್ರೇರಣೆಯಿಂದ ಒಪ್ಪಿಕೊಂಡರೆ ಮಾತ್ರ ನೀವು ಹೆಬ್ಬೆರಳು ಅನಿಸಿಕೆ ಸಹಿ / ಒದಗಿಸುವ ಅಗತ್ಯವಿದೆ.

ಹೆಚ್ಚಿನ ಮಾಹಿತಿಗಾಗಿ, ಸಂಪರ್ಕಿಸಿ

ಡಾ. ತುಷಾರ್ ಡೇವ್ (ಸ್ನಾತಕೋತ್ತರ)

ಮೊಬೈಲ್ ಸಂಖ್ಯೆ - 9769693716

ಸಾಮಾನ್ಯ ಶಸ್ತ್ರಚಿಕಿತ್ಸೆ ಇಲಾಖೆ

SDUMC, ಕೋಲಾರ

ರೋಗಿಯ ಸಹಿ / ಹೆಬ್ಬೆರಳು ಅನಿಸಿಕೆ

ಸಾಕ್ಷಿ ಸಹಿ / ಹೆಬ್ಬೆರಳು ಅನಿಸಿಕೆ

ANNEXURE-3

INFORMED CONSENT FORM

I Mr./Mrs. have been explained in my own understandable language, that I will be included in a study "**A COMPARATIVE STUDY BETWEEN BISAP SCORE AND JAPANESE SCORE FOR PREDICTING THE SEVERITY IN ACUTE PANCREATITIS**" which is being conducted in RL JALAPPA HOSPITAL.

I have been explained that my clinical findings, investigations, will be assessed and documented for study purpose.

I have been explained my participation in this study is entirely voluntary, and I can withdraw from the study any time and this will not affect my relation with my doctor or the treatment for my ailment.

I have been explained about the follow up details and possible benefits and adversities due to interventions, in my own understandable language.

I have understood that all my details found during the study are kept confidential and while publishing or sharing of the findings, my details will not be disclosed.

I give my consent to be added in this study.

Signature of the patient:

Name:

Signature of the witness:

Name:

Relation to patient:

Place:

Date:

ಮಾಹಿತಿ ಕಾನ್ಸೆಂಟ್ ಫಾರ್ಮ್

ನಾನು ಶ್ರೀ / ಶ್ರೀ. ನನ್ನ ಸ್ವಂತ ಅರ್ಥವಾಗುವ ಭಾಷೆಯಲ್ಲಿ ವಿವರಿಸಲಾಗಿದೆ, ಆರ್ಎಲ್ ಜಲಪ್ಪಾ ಹಾಸ್ಪಿಟಲ್ನಲ್ಲಿ ನಡೆಸಲಾಗುತ್ತಿರುವ "ಬಿಸಾಪ್ ಸ್ಕೋರ್ ಮತ್ತು ಜಪಾನ್ಸ್ ಸ್ಕೋರ್ ನಡುವೆ ತೀವ್ರ ಅಧ್ಯಯನಕ್ಕೆ ಮುನ್ಸೂಚನೆ ನೀಡುವ ಅಧ್ಯಯನ" ದಲ್ಲಿ ನನ್ನನ್ನು ಸೇರಿಸಲಾಗುವುದು.

ನನ್ನ ಕ್ಲಿನಿಕಲ್ ಆವಿಷ್ಕಾರಗಳು, ತನಿಖೆಗಳು ಮೌಲ್ಯಮಾಪನ ಮತ್ತು ಅಧ್ಯಯನದ ಉದ್ದೇಶಕ್ಕಾಗಿ ದಾಖಲಿಸಲ್ಪಡುತ್ತವೆ ಎಂದು ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ.

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ನನ್ನ ಭಾಗವಹಿಸುವಿಕೆಯು ಸಂಪೂರ್ಣವಾಗಿ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ ಎಂದು ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ, ಮತ್ತು ನಾನು ಯಾವುದೇ ಸಮಯದಲ್ಲಿ ಅಧ್ಯಯನದಿಂದ ಹಿಂದೆ ಸರಿಯಬಹುದು ಮತ್ತು ಇದು ನನ್ನ ವೈದ್ಯರೊಂದಿಗಿನ ನನ್ನ ಸಂಬಂಧ ಅಥವಾ ನನ್ನ ಕಾಯಿಲೆಗೆ ಚಿಕಿತ್ಸೆಯ ಮೇಲೆ ಪರಿಣಾಮ ಬೀರುವುದಿಲ್ಲ.

ನನ್ನ ಸ್ವಂತ ಅರ್ಥವಾಗುವ ಭಾಷೆಯಲ್ಲಿ, ಮುಂದಿನ ವಿವರಗಳು ಮತ್ತು ಮಧ್ಯಸ್ಥಿಕೆಗಳ ಕಾರಣದಿಂದಾಗಿ ಸಂಭವನೀಯ ಪ್ರಯೋಜನಗಳು ಮತ್ತು ಪ್ರತಿಕೂಲತೆಗಳ ಬಗ್ಗೆ ನನಗೆ ವಿವರಿಸಲಾಗಿದೆ.

ಅಧ್ಯಯನದ ಸಮಯದಲ್ಲಿ ಕಂಡುಬರುವ ನನ್ನ ಎಲ್ಲಾ ವಿವರಗಳನ್ನು ಗೌಪ್ಯವಾಗಿಡಲಾಗಿದೆ ಮತ್ತು ಸಂಶೋಧನೆಗಳನ್ನು ಪ್ರಕಟಿಸುವಾಗ ಅಥವಾ ಹಂಚಿಕೊಳ್ಳುವಾಗ ನನ್ನ ವಿವರಗಳನ್ನು ಬಹಿರಂಗಪಡಿಸುವುದಿಲ್ಲ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.

ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಸೇರಿಸಲು ನನ್ನ ಒಪ್ಪಿಗೆ ನೀಡುತ್ತೇನೆ.

ರೋಗಿಯ ಸಹಿ:

ಹೆಸರು:

ಸಾಕ್ಷಿಯ ಸಹಿ:

ಹೆಸರು:

ರೋಗಿಗೆ ಸಂಬಂಧ:

ಸ್ಥಳ:

ದಿನಾಂಕ:

ANNEXURE-4

MASTER CHART

Sl. No.	UHID	AGE	GENDER	BISAP SCORE (Out of 5)	BISAP GRADE	JSS SCORE (Out of 9)	JSS GRADE	SICU STAY	SOMATOSTATIN ANALOGUE	CLINICAL DETERIORATION	ORGAN FAILURE	MORTALITY
1	549455	32	M	2	MAP	4	SAP	3	YES	NO	NO	NO
2	680272	50	F	3	SAP	5	SAP	3	YES	NO	NO	NO
3	692790	60	M	2	MAP	5	SAP	2	YES	Yes	ARDS	Yes
4	681065	32	M	2	MAP	3	MOP	2	YES	NO	NO	NO
5	671962	35	M	2	MAP	2	MAP	1	YES	NO	NO	NO
6	673730	24	M	2	MAP	4	SAP	3	YES	Yes	AKI	Yes
7	685588	40	M	2	MAP	5	SAP	2	YES	NO	NO	NO
8	668220	43	M	3	SAP	6	SAP	4	YES	Yes	AKI	Yes
9	744584	33	M	3	SAP	5	SAP	3	YES	NO	NO	NO
10	738934	23	M	2	MAP	4	SAP	3	YES	NO	NO	NO
11	763952	18	M	2	MAP	4	SAP	4	YES	NO	NO	NO
12	726178	32	M	2	MAP	3	MOP	2	YES	Yes	NO	NO
13	756675	45	M	1	MAP	3	MOP	2	YES	NO	NO	NO
14	738934	23	M	2	MAP	4	SAP	3	YES	NO	NO	NO
15	753200	35	M	3	SAP	3	MOP	2	YES	Yes	NO	Yes

16	746821	52	M	2	MAP	3	MOP	2	YES	NO	NO	NO
17	728491	37	M	2	MAP	4	SAP	2	YES	NO	NO	NO
18	764834	85	M	3	SAP	5	SAP	3	YES	NO	NO	NO
19	742034	85	M	2	MAP	4	SAP	2	YES	NO	NO	NO
20	720941	50	M	3	SAP	6	SAP	4	YES	NO	NO	NO
21	755324	48	M	2	MAP	5	SAP	3	YES	NO	NO	NO
22	722268	40	M	2	MAP	5	SAP	3	YES	NO	NO	NO
23	713728	26	M	1	MAP	4	SAP	3	YES	NO	NO	NO
24	714060	37	M	1	MAP	3	MOP	2	YES	NO	NO	NO
25	755341	30	M	2	MAP	4	SAP	3	YES	NO	NO	NO
26	764643	29	M	2	MAP	4	SAP	2	YES	NO	ARDS	Yes
27	715215	32	M	3	SAP	6	SAP	5	YES	NO	NO	NO
28	737603	48	M	3	SAP	5	SAP	3	YES	NO	NO	NO
29	765685	30	M	2	MAP	4	SAP	3	YES	NO	NO	NO
30	789486	35	M	2	MAP	5	SAP	3	YES	NO	NO	NO
31	831103	48	M	2	MAP	4	SAP	2	YES	NO	NO	NO
32	677971	29	M	3	SAP	5	SAP	3	YES	NO	NO	NO
33	824949	35	M	3	SAP	6	SAP	4	YES	NO	NO	NO
34	775959	34	M	2	MAP	4	SAP	3	YES	NO	NO	NO
35	816800	57	M	2	MAP	5	SAP	3	YES	NO	NO	NO
36	813884	30	M	2	MAP	4	SAP	2	YES	NO	NO	NO

37	693693	27	M	1	MAP	3	MOP	1	YES	NO	NO	NO
38	764834	85	M	3	SAP	4	MOP	3	YES	YES	NO	NO
39	775959	34	M	1	MAP	1	MAP	2	NO	NO	NO	NO
40	737603	48	M	2	MAP	2	MAP	3	NO	NO	NO	NO
41	778288	35	M	1	MAP	2	MAP	2	YES	NO	NO	NO
42	677971	29	M	1	MAP	3	MOP	3	YES	YES	NO	NO
43	790713	18	F	2	MAP	4	MOP	5	YES	YES	NO	NO
44	789486	35	M	1	MAP	1	MAP	1	NO	NO	NO	NO
45	657006	45	M	2	MAP	4	MOP	4	YES	NO	NO	NO
46	797731	35	M	1	MAP	2	MAP	3	NO	NO	NO	NO
47	807160	35	M	2	MAP	4	MOP	5	YES	YES	NO	NO
48	813884	30	M	0	MAP	2	MAP	2	YES	YES	NO	NO
49	816800	57	F	0	MAP	2	MAP	1	NO	NO	NO	NO
50	816830	35	M	2	MAP	5	MOP	4	YES	YES	NO	NO
51	831103	48	M	3	SAP	6	SAP	1	YES	YES	ARDS	NO
52	824949	35	M	2	MAP	3	MOP	3	YES	NO	NO	NO
53	816869	48	M	2	MAP	4	MAP	2	YES	NO	NO	NO
54	798269	28	M	3	SAP	5	SAP	2	YES	YES	YES	NO
55	750559	32	M	2	MAP	6	SAP	3	YES	YES	YES	NO
56	856109	30	M	2	MAP	3	MOP	2	YES	YES	YES	NO
57	824022	43	M	3	MOP	5	SAP	3	YES	YES	NECROTIZING	YES

											PANCREATITIS	
58	830206	29	M	2	MAP	4	SAP	2	NO	NO	NO	NO
59	816423	20	M	2	MAP	3	MOP	2	YES	NO	NO	NO
60	672801	30	M	3	MAP	5	SAP	3	YES	YES	AKI	Yes
61	832037	35	M	3	SAP	6	SAP	4	YES	NO	NO	NO
62	782753	34	M	2	MAP	4	SAP	3	YES	NO	NO	NO
63	738934	57	M	2	MAP	5	SAP	3	YES	NO	NO	NO
64	750559	30	M	2	MAP	4	SAP	2	YES	NO	NO	NO