

## ASSESSMENT OF CLINICAL AND BIOCHEMICAL PARAMETERS OF ACUTE PANCREATITIS- A CROSS SECTIONAL STUDY

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### ABSTRACT

#### BACKGROUND

Acute pancreatitis is a common disease with wide clinical variation and its incidence is increasing. The average mortality rate in severe acute pancreatitis approaches 2–10 %. Severe acute pancreatitis (SAP) develops in about 25% of patients with acute pancreatitis. According to the severity, acute pancreatitis is divided into mild acute pancreatitis (absence of organ failure and local or systemic complications), moderately severe acute pancreatitis (no organ failure or transient organ failure less than 48 hours with or without local complications) and severe acute pancreatitis (persistent organ failure of more than 48 hours that may involve one or multiple organs). The present study was conducted to assess the clinical presentation of acute pancreatitis and thereby assess the diagnosis as well.

#### METHODS

The present study was a cross sectional hospital-based study, carried out among 50 indoor cases of acute pancreatitis admitted under department of general medicine, in a tertiary healthcare teaching institute in Maharashtra, during the period February 2018 to April 2018.

#### RESULTS

Almost all patients (96%) with PP presented with abdominal pain and lump in abdomen (92%). 62% had complaints of fever, 46% presented with nausea and vomiting. 40% cases complained of weight loss.

#### CONCLUSIONS

Early assessment of severity and intensive care management of acute pancreatitis is of paramount importance. Lab markers especially high values of lipase and other markers could be important prognostic markers for predicting morbidity and mortality in acute pancreatitis.

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#### BACKGROUND

Acute pancreatitis is a common disease with wide clinical variation and its incidence is increasing. The average mortality rate in severe acute pancreatitis approaches 2–10 %.<sup>[1]</sup> Severe acute pancreatitis (SAP) develops in about 25% of patients with acute pancreatitis. Severe acute pancreatitis is a two-phase systemic disease. The first phase is characterised by extensive pancreatic inflammation and/or necrosis and is followed by a systemic inflammatory response syndrome (SIRS) that may lead to multiple organ dysfunction syndrome (MODS) with in the first week. About 50% of deaths occur within the first week of the attack, mostly from MODS. The formation of infected pancreatic necrosis or fluid collection occurs usually in the second week. The factors which cause death in most patients with acute pancreatitis seem to be related specifically to multiple organ dysfunction syndrome and these deaths account for 40–60% of in-hospital deaths in all age groups. The mortality figures

associated with MODS vary between 30–100 %. Infection is not a feature of the early phase. Pro inflammatory cytokines contribute to respiratory, renal, and hepatic failure. The “second or late phase” which starts 14 days after the onset of the disease, is marked by infection of the gland, necrosis and systemic complications causing a significant increase in mortality. The association between increasing age and death from acute pancreatitis is well documented. Respiratory failure is the most common type of organ failure in acute pancreatitis.<sup>[2]</sup>

According to the severity, acute pancreatitis is divided into mild acute pancreatitis (Absence of organ failure and local or systemic complications, moderately severe acute pancreatitis (No organ failure or transient organ failure less than 48 hours with or without local complications) and severe acute pancreatitis (Persistent organ failure more than 48 hours that may involve one or multiple organs).<sup>[3]</sup>

The present study was conducted to study the clinical presentation of acute pancreatitis among the suspected cases admitted to department of general medicine in tertiary case institute.

#### METHODS

The present study was a cross sectional study hospital based carried out among 50 indoor cases of acute pancreatitis admitted under department of general medicine in a tertiary healthcare teaching institute in Maharashtra during February 2018 to April 2018.

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**Source of Data**

All the cases of suspected acute pancreatitis admitted under department of general medicine in a tertiary healthcare institute, and fulfils the set inclusion criteria, who consented to participate in the study were included in the present study.

**Method of Data Collection**

The data was collected from cases fulfilling inclusion criteria using pre-designed, semi-structured, pre-validated proforma, in which history, clinical findings, investigation reports, were incorporated. Cases of acute pancreatitis were evaluated with detailed history, clinical signs and symptoms, the duration and investigations. Blood and urine investigations, Ultrasonography (USG) Abdomen and/or Computerised Tomography.

**RESULTS**

When we classified the participants according to their age groups, we found that majority of participants belonged to 31 - 40 years of age group (42%) followed by 21-30 years (22%).

Age Group (in Years)	Number of Participants	Percentage
≤ 20	2	4%
21 - 30	11	22%
31 - 40	21	42%
41 - 50	9	18%
51 - 60	5	10%
≥ 61	2	4
<b>Total</b>	<b>32</b>	<b>100 %</b>

**Table 1. Distribution of Participants According to Their Age Group**

Gender	Number of Participants	Percentage
<b>Males</b>	<b>39</b>	<b>88%</b>
<b>Females</b>	<b>11</b>	<b>22%</b>

**Table 2. Gender-Wise Distribution of Study Participants**

Out of 32 study participants, 88% were males and 22% were females (Table 2). Here we observed that male participants outnumbered the female participants.

Personal History	Number of Participants	Percentage	
Alcoholism	27	54%	
Smoking	12	24%	
Diet	Mixed	35	70%
	Vegetarian	15	30%

**Table 3. Distribution of Participants According to Their Personal History**

In this study it was observed that 54% patients had a history of chronic alcoholism, 24% patients had history of smoking. It was found that 70% of study participants were having mixed pattern of diet, while 10 30% study participants were having strict vegetarian pattern of diet (Table 3).

Clinical Features	Number of Participants	Percentage
Pain Abdomen	48	96%
Rigidity	46	92%
Fever	31	62%
Nausea / Vomiting	23	46%
Weight Loss	20	40%

**Table 4. Distribution of Participants According to Their Clinical Presentations**

The clinical presentation of cases of acute pancreatitis observed as per the present study was as given in Table 5. Almost all patients (96%) with PP presented with abdominal pain and lump in abdomen (92%). 62% had complaints of fever, 46% presented with nausea and vomiting, 40% cases complained of weight loss. (Table 4).

General Examination	Number of Participants	Percentage
Febrile	28	56%
Raised RR	20	40%
Pallor	18	36%
Icterus	12	24%
Tenderness	38	76%
Hypertension	16	32%

**Table 5. Distribution of Participants According to Their General Examination Positive Findings**

Among the 50 Patients with acute pancreatitis, it was found that 56% were febrile, 40% patients were having raised respiratory rate, 36% were having pallor whereas 24% cases presented with icterus in local examination, 76% cases had tenderness. It was found that 32% cases presented with hypertension rest all had blood pressure within normal range. (Table 5).

Blood Investigations	Parameter	Number of Participants	Percentage
Haemoglobin	<10	12	24%
	>10	38	76%
Total Leucocyte Counts	< 12000	10	20%
	>12000	40	80%
BSR	<200	32	64%
	>200	18	36%
Serum Bilirubin	< 1.5 mg	8	16%
	>1.5 mg	42	84%
Serum Lipase	Low	11	22%
	Raised	39	88%

**Table 6. Blood Investigations Observations**

In present study, it was found that 12 cases presented with haemoglobin less than 10 mg/dl (Anaemia), In 40 cases raised TLC was observed (More than 12000), same cases presented with fever. Rest of the cases were having TLC less than 12000. Random blood sugar estimation was done among the cases of acute pancreatitis, it was found that 18 cases were having BSR more than 200 mg/dl. Serum bilirubin estimation was also done, 42 cases were found with serum bilirubin more than 1.5 mg. Serum lipase values were found to be elevated in majority of cases (39), which is considered to be suggestive of pancreatitis (Table 6).

**DISCUSSION**

The present study was conducted to study the clinical presentation of acute pancreatitis among the suspected cases

admitted to department of general medicine in tertiary case institute.

#### Demography

Out of 32 study participants, 88% were males and 22% were females (Table 2). Here we observed that male participants outnumbered the female participants. Crisanto BA et al,<sup>[4]</sup> in their study enrolled 23 males and 15 female cases (47). Similar findings were noted by Khaled YS et al<sup>[5]</sup> reports 28 male and 12 female subjects in their study (50). However, Simo KA et al<sup>[6]</sup>, they found more female study participants (10 out of 15 subjects) (49) and Hauters P et al<sup>[7]</sup> also reported 5 male and 7 females among their study participants (46).

#### Age Incidence

Out of 32 study participants, 88% were males and 22% were females. Here we observed that male participants outnumbered the female participants Crisanto BA et al<sup>[4]</sup>, in their study found mean age of participants as 38.8 years (47). Khaled YS et al<sup>[5]</sup> reports 55 years as a mean age of study subjects (50). Hauters P et al<sup>[7]</sup> observes that the median age of 46 years (range: 30-72) (46). Similarly study by Simo KA et al<sup>[6]</sup> reports the median age of the cohort was 49.5 ± 12 years (range = 18-71) (49).

#### Personal History

In this study it was observed that 54% patients had a history of chronic alcoholism, 24% patients had history of smoking. It was found that 70% of study participants were having mixed pattern of diet, while 10 30% study participants were having strict vegetarian pattern of diet. Crisanto BA et al,<sup>[4]</sup> in their study found that 29% cases gave history of alcoholism (47). Park et al found history of alcoholism in 18.5% cases, while Hamza et al,<sup>[8]</sup> Mori et al<sup>[9]</sup> and Hauters P et al<sup>[7]</sup> found that 30% cases had history of alcoholism (52)(46)(54).

#### Clinical Presentation of Pancreatic Pseudocyst

The clinical presentation of cases of acute pancreatitis observed as per the present study was as given in Table 5. Almost all patients (96%) with PP presented with abdominal pain and lump in abdomen (92%). 62% had complaints of fever, 46% presented with nausea and vomiting, 40% cases complained of weight loss. BA Crisanto-Campos et al<sup>[4]</sup> in their study reported that out of 17 cases, 15 complained of epigastric pain, 6 cases reported with early satiety, 3 cases reported with weight loss and 2 cases reported with infected pancreatic pseudocyst (47).

#### General Findings

Among the 50 Patients with acute pancreatitis, it was found that 56% were febrile, 40% patients were having raised respiratory rate, 36% were having pallor whereas 24% cases presented with icterus In local examination, 76% cases had tenderness. It was found that 32% cases presented with hypertension rest all had blood pressure within normal range.

#### Investigations Findings

In present study, it was found that 12 cases presented with haemoglobin less than 10 mg/dl (Anaemia), In 40 cases raised TLC was observed (More than 12000), same cases presented with fever. Rest of the cases were having TLC less than 12000. Random blood sugar estimation was done among the cases of acute pancreatitis, it was found that 18 cases were having BSR more than 200 mg/dl. Serum bilirubin estimation was also done, 42 cases were found with serum bilirubin more than 1.5 mg. Serum lipase values were found to be elevated in majority of cases (39), which is considered to be suggestive of pancreatitis.

#### CONCLUSIONS

Early assessment of severity and intensive care management of acute pancreatitis is of paramount importance. Lab markers especially high values of lipase and other markers could be important prognostic markers for predicting morbidity and mortality in acute pancreatitis.

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