

## Evaluation of the clinic-etiologic profile and outcome of acute pancreatitis: an observational study

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### Abstract

**Background:** Acute Pancreatitis is a common disease with wide clinical variation and its incidence is increasing. Acute pancreatitis is an inflammatory process leading to abdominal pain, progressive destruction of exocrine tissue and in some patients a loss of endocrine tissue as well, with multiple organ failure and high mortality. Severity of acute pancreatitis is linked to the presence of systemic organ dysfunction and/or necrotizing pancreatitis. **Aim:** The present study was aimed to study etiology, clinical profile and outcome of acute pancreatitis. **Material and Methods:** This study was a prospective observational study done in the Department of General Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India for 18 months. The study population consisted of 120 cases of acute pancreatitis that fulfilled the diagnostic criteria. The diagnostic criteria included at least one of the three features. They are serum amylase more than 4 times the upper limit of normal, serum Lipase more than 2 times the upper limit of normal and ultrasound or CT scan suggestive of acute pancreatitis. History of previous episodes and co-morbidities was noted. **Results:** Out of 120 patients included in study, 70 were males and 50 were females. In our study, majority of patients at the age group of 30-40 (44.17%) and followed by 40-50 years (32.5%). The youngest patient was 16 year and the oldest Patient was 71 years. All the patients (100%) presented with pain abdomen, 85.83% of them presented with nausea/vomiting, 46.67% of them presented with fever and 28.33 % of them with jaundice. In this study, 47.5% biliary pancreatitis was found to be the most common cause for acute pancreatitis. Alcoholism was the second most common cause (34.17%). Hyperlipidemia (4.17%) and traumatic (4.17%) pancreatitis was found in 5 patient each. Patients where no cause was found were labelled as idiopathic (10%). In males alcoholism induced pancreatitis was most common with a second commonest as biliary etiology. **Conclusion:** acute pancreatitis is one of the leading cause for increase morbidity and mortality to society. Clinical assessment along with lab markers correlated well with the mortality and morbidity.

**Keywords:** acute pancreatitis, clinical, morbidity, mortality.

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### Introduction

The name “pancreas” is derived from Greek word “pan” (all) and “Kreas” (flesh). It was originally thought to act as cushion for stomach[1]. Acute Pancreatitis is an acute inflammatory process of the pancreas with variable involvement of regional tissues and remote organ system[2]. The average mortality rate in severe acute pancreatitis approaches 2-10%[3]. The diagnosis of acute pancreatitis requires two of the following three features: abdominal pain consistent with acute pancreatitis, serum lipase activity at least three times greater than the upper limit of the normal and characteristic finding of acute pancreatitis on Contrast Enhanced Computed Tomography (CECT) and less commonly Magnetic Resonance Imaging (MRI) or Transabdominal Ultrasonogram. The American College of Gastroenterology (ACG) practice guidelines provide acceptable terminology for the classification of acute pancreatitis and its complications[4]. Acute pancreatitis is broadly classified (The Atlanta Classification) as mild and severe. The mild acute pancreatitis is often referred to as Interstitial Pancreatitis, based on its radiographic appearance. Severe acute pancreatitis implies presence of organ failure, local complications, or pancreatic necrosis. Interstitial pancreatitis implies preservation of pancreatic blood

supply. The attack is mild in almost 80% of patients who will show marked improvement within 48 hours. In some 20% of patients however it is severe with high morbidity and mortality[5,6]. The first twelve hours are extremely important to provide appropriate - management which decreases morbidity and mortality[7-9]. Most cases of acute pancreatitis fall in to the mild category with favorable recovery. However, 15% to 20% cases of acute pancreatitis are severe and may result in prolonged hospitalization and local as well systemic complications like Systemic Inflammatory Response Syndrome (SIRS), multi organ system failure and death[10]. There are many causes of acute pancreatitis but the mechanism by which the condition trigger pancreatic inflammation have not been identified. Nearly 80% of cases of acute pancreatitis worldwide are caused by gall stone obstruction and alcohol intake. Other causes like hypertriglyceridemia and drugs account for the rest. It is necessary to identify the etiology to institute definitive management and to prevent further attack and to assess the severity for the proper management of patients. Symptoms of acute pancreatitis vary considerably. For this reason clinician must carefully evaluate information derived from other sources that supplement the history and physical examination including laboratory tests, imaging studies before arriving at a correct diagnosis of acute pancreatitis. If the cause of the attack can be eliminated there will be no further attacks and the pancreas will return to normal in terms of its morphology and function[11]. In mild attack of pancreatitis, a conservative approach is indicated with intravenous fluid administration and frequent, but non

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invasive observation. However, if the patient has a severe attack of pancreatitis, then a more aggressive approach is required with the patient being admitted to a high dependency or an intensive care unit where the patient is monitored invasively to ensure haemostasis of cardiovascular, respiratory and renal systems[1].

#### Material and methods

This study was a prospective observational study done in the Department of General Surgery, Anugrah Narayan Magadh Medical College and Hospital, Gaya, Bihar, India for 18 months.

#### Methodology

All the patients admitted in the surgical ward of the department of General surgery who were diagnosed for acute pancreatitis and above the age of 15 years were included.

Acute episodes in patients with chronic pancreatitis, other co-morbid conditions like renal failure, cardiac failure, generalized debility and other factors, which adversely affect recovery from pancreatitis and patients who underwent initial treatment in another centre were excluded from study.

The study population consisted of 120 cases of acute pancreatitis that fulfilled the diagnostic criteria. The diagnostic criteria included at least one of the three features. They are serum amylase more than 4 times the upper limit of normal, serum Lipase more than 2 times the upper limit of normal and ultrasound or CT scan suggestive of acute pancreatitis. On admission history was collected and thorough physical examination was done. Data collection on admission included age, sex, address and clinical presentation with respect to pain vomiting, gallstones trauma and drugs was noted. History of previous episodes and co-morbidities was noted.

#### Results

Out of 120 patients included in study, 70 were males and 50 were females. In our study, majority of patients at the age group of 30-40 (44.17%) and followed by 40-50 years (32.5%). The youngest patient was 16 year and the oldest Patient was 71 years (Table 1). All the patients (100%) presented with pain abdomen, 85.83% of them presented with nausea/vomiting, 46.67% of them presented with fever and 28.33 % of them with jaundice (Table 2).

**Table 1: Age and sex of acute pancreatitis patients**

| Age group in years | Male=70 | Female=50 | Total =120 | %      | P value |
|--------------------|---------|-----------|------------|--------|---------|
| Below 20           | 3       | 1         | 4          | 3.33%  | 0.71 NS |
| 20-30              | 10      | 3         | 13         | 10.83% |         |
| 30-40              | 29      | 24        | 53         | 44.17% |         |
| 40-50              | 22      | 17        | 39         | 32.5%  |         |
| 50-60              | 5       | 4         | 9          | 7.5%   |         |
| Above 60           | 1       | 1         | 2          | 1.67%  |         |

**Table 2: Symptomatology of acute pancreatitis patients**

| Symptoms     | No of patients | %      |
|--------------|----------------|--------|
| Pain abdomen | 120            | 100%   |
| Fever        | 56             | 46.67% |
| Vomiting     | 103            | 85.83% |
| Jaundice     | 34             | 28.33% |

In this study, 47.5% biliary pancreatitis was found to be the most common cause for acute pancreatitis. Alcoholism was the second most common cause (34.17%). Hyperlipidemia (4.17%) and traumatic (4.17%) pancreatitis was found in 5 patient each. Patients where no cause was found were labelled as idiopathic (10%). In males alcoholism induced pancreatitis was most common with a second commonest as biliary etiology (Table 3).

**Table 3: Etiology and sex distribution of acute pancreatitis**

| Etiology        | Males | Females | Total =120 | %      | P value |
|-----------------|-------|---------|------------|--------|---------|
| Biliary         | 25    | 32      | 57         | 47.5%  | 0.06 NS |
| Alcoholism      | 30    | 11      | 41         | 34.17% |         |
| Hyperlipidaemia | 0     | 5       | 5          | 4.17%  |         |
| Traumatic       | 5     | 0       | 5          | 4.17%  |         |
| Idiopathic      | 3     | 9       | 12         | 10%    |         |

Diabetes mellitus was most prevalent in the study population 60.83%. Obesity as defined by the current definition was prevalent in 39.17% (Table 4).

**Table 4: Comorbidities in acute pancreatitis**

| Comorbidities     | No of patients | %      |
|-------------------|----------------|--------|
| Diabetes mellitus | 73             | 60.83% |
| Obesity           | 47             | 39.17% |

#### Discussion

Our study has been conducted in 120 patients and is hospital based prospective study In our study, majority of patients at the age group

of 30-40 (44.17%) and followed by 40-50 years (32.5%). The youngest patient was 16 year and the oldest Patient was 71 years. This can be explained by more alcohol consumption in middle aged males as compared to other age groups. This is comparable to the

studies done by Negi et al.[12] where 47.15% were in the age group of 41-60 years and 43.91% were in the age group of 18-40 years. However, the peak incidence of 30 years was reported in a study done by Baig et al.[13] indicating younger age group being affected. In our study, males outnumbered females and the male to female ratio was 1.40:1. This is comparable with studies of Negi et al.[12] where male to female ratio was 2.6:1. The age and sex-wise recruitment of the subjects in the present study was in accordance with the earlier studies[14,15]. In our study, abdominal pain was the most common presenting complaint in all patients (100%). This co-relates with the studies by Negi et al.[12] In our study, Vomiting was seen in 85.83% and fever was seen in 46.67%. This is comparable to the study done by Negi et al.[12] where vomiting was seen in 42.27% and fever was seen in 22.4%. Vomiting may be severe and protracted. The abdominal distension was due to result of paralytic ileus arising from retroperitoneal irritation or ascites, or it may occur secondary to a retroperitoneal phlegmon. Jaundice may be occasionally seen in cases of gall stone pancreatitis, in which it represents distal CBD obstruction by gall stones[16]. Patients may also present with biliary colic.

In this study, 47.5% biliary pancreatitis was found to be the most common cause for acute pancreatitis. Alcoholism was the second most common cause (34.17%). Hyperlipidemia (4.17%) and traumatic (4.17%) pancreatitis was found in 5 patient each. Patients where no cause was found were labelled as idiopathic (10%). In biliary pancreatitis usually occurs in older adults, often have a history of cholelithiasis or intermittent, postprandial right upper-quadrant pain. Patients with acute pancreatitis present with mild to severe epigastric pain, with radiation to the back. Classically, the pain is characterized as constant, dull and boring, and is worse when the patient is supine[17]. The discomfort may lessen when the patient assumes a sitting or foetal position. A heavy meal or drinking binge often triggers the pain. On examination, severe pancreatitis was found to be associated with haemorrhage into the retro peritoneum may produce two distinctive sign's in about 3% of patients with pancreatitis namely Turner's sign (Bluish discoloration in the left flank) and Cullen's sign (Bluish discoloration of the periumbilical region)[18]. These are due to tracking of bloodstained retroperitoneal fluid through tissue planes of the abdominal wall to the flanks or along the falciform ligament. These signs suggest severe episode of acute haemorrhagic pancreatitis. A third rare finding called, fox sign (Bluish discoloration below the inguinal ligament or at the base of the penis) due to caudal tracking of fluid was also observed. Epigastric and right hypochondriac tenderness was present, sometimes present diffusely the abdomen. Bowel sounds were decreased or absent. Usually there were no masses palpable, if present it could be swollen pancreas or pseudocyst or abscess. Temperature was mildly elevated (100-101 Degree F) even in uncomplicated cases. In severe cases, orthostatic hypotension and tachycardia may be present, along with tachypnea or even dyspnoea. There may be evidence of a pleural effusion, especially on the left side. In other studies biliary pancreatitis was most prevalent. The combined etiology of alcohol and biliary pancreatitis is 81.67% which is fairly consistent with the other studies.<sup>19</sup> In males alcoholism induced pancreatitis 42.86% was most common, second commonest is biliary etiology (35.71%). Kandasami P and colleagues reported that 78% of males the predominant etiology is alcoholism and 77% of females, the etiology for acute pancreatitis are biliary etiology[19].

**Conflict of Interest: Nil**  
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## Conclusion

Acute pancreatitis is one of the leading cause for increase morbidity and mortality to society. Clinical assessment along with lab markers correlated well with the mortality and morbidity.

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