

# Clinical Profile, Etiology, Management and Outcome of Patients with Acute Pancreatitis in a Tertiary Care Centre in North East India: A Three Years Retrospective Study

Narang Naku, Noor Topno\*, Arup Jyoti Baruah, Ranendra Hajong, Donkumar Khongwar, Dathia Tongper, Ngukato Rochill

Department of General Surgery, NEIGRIHMS, Shillong, Meghalaya, INDIA.

## ABSTRACT

**Background:** Acute Pancreatitis is a very complex condition and common disease with wide clinical variation and with diverse local and systemic complications often requiring a hospital admission. 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 comorbidities, systemic organ dysfunction and/or necrotizing pancreatitis. **Aim and Objectives:** The present study was aimed to study the clinical profile of acute pancreatitis, the etiology, complications, management and outcome of acute pancreatitis received treatment in the Department of Surgery, NEIGRIHMS, Shillong, Meghalaya, India. **Materials and Methods:** This is a hospital-based study by retrospective chart analysis of all acute pancreatic cases for the past 3 years which was conducted from January 2019 to December 2021. All patients with a diagnosis of acute pancreatitis were included in this study in order to find out the clinical presentations from the available clinical, laboratory and radiological data. **Results:** Of the 120 patients in this study, 96 were male and 4 were female. Minimum age in our study was 10 years and maximum were 70 years. Maximum numbers of patients were below 45 years of age. Alcohol was identified as the most important etiological factor associated with acute pancreatitis. Among the known etiological factors 87.5% of the cases were related to alcoholism and 12.5% were due to gall stone disease. Abdominal pain and vomiting were the most common symptoms in our study. Epigastric tenderness was present in 80.8% of the cases and guarding/rigidity in 50% of cases. 14.4% patients showed jaundice as a sign of acute pancreatitis. There was no major difference between the CT grading system and clinical grading system. Most of the patients recovered with conservative treatment, however percutaneous ultrasound guided aspiration and surgery were considered in very few selected cases as a last resort. Adverse outcome was noted in three patients with acute necrotizing pancreatitis having multiorgan failure and comorbidities. **Conclusion:** Acute pancreatitis is one of the leading causes of increase in morbidity and mortality to society. Clinical assessment along with radiological findings.

**Keywords:** Pancreatitis, Alcohol, Clinical profile, Outcome, Management.

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## Correspondence

**Dr. Noor Topno**

Professor and HOD, Department of General Surgery, NEIGRIHMS, Shillong, Meghalaya, INDIA.

Email: noortopno@gmail.com

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## INTRODUCTION

Acute pancreatitis is one of the commonest presentations of acute abdomen to hospital which can have a variable clinical presentations and outcomes from mild to severe life threatening multiorgan dysfunction. The name “pancreas” is derived from Greek word “Pan” (all) and “Kreas” (flesh). It was originally thought to act as cushion for stomach. Dealing with the clinical course of acute pancreatitis and its management of severe acute pancreatitis is very much limited by ambiguities regarding the pathogenesis and multiorgan involvement of the disease, uncertainties to predict outcome and few effective treatment modalities.<sup>1</sup> Acute Pancreatitis is an acute inflammatory process of the pancreas with variable involvement of regional tissues and remote organ system.<sup>2</sup> The average mortality rate in severe acute pancreatitis approaches 2-10%.<sup>3</sup> The diagnosis of acute pancreatitis requires two of the following three features: abdominal pain consistent with acute pancreatitis (acute onset of persistent, severe, epigastric pain often radiating to the back), serum lipase activity (or amylase 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.<sup>4</sup> 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 hr. In some 20% of patients however it is severe with high morbidity and mortality.<sup>5,6</sup> The first twelve hours are extremely important to provide appropriate management which decreases morbidity and mortality.<sup>7-9</sup> 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.<sup>10</sup> 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. According to a retrospective study conducted by Matar ZA in Arab Population 96% of patients with gall stone were the leading cause.<sup>8</sup> Early confirmation of etiology by radiological investigation like Endoscopic Retrograde Cholangiopancreatography (ERCP) and Magnetic Resonance Cholangiopancreatography (MRCP) within 48 hr and clearance of stone from common bile duct followed by urgent cholecystectomy within 3 to 9 days gave excellent outcome. Early accurate diagnosis of acute pancreatitis is very important for its management. 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.<sup>11</sup> In mild attack of pancreatitis, a conservative approach is indicated with intravenous fluid administration and frequent, but non-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 haemostatis of cardiovascular, respiratory and renal systems.

Acute pancreatitis is a common disease with wide clinical variation. There are limited data on clinical profile of acute pancreatitis from the north eastern region of India, this study was conducted to observe the clinical presentations of acute pancreatitis treated in the department of Surgery of NEIGRIHMS, Shillong, Meghalaya, India.<sup>12,13</sup>

## MATERIALS AND METHODS

This is a hospital record-based study, performed in the Department of Surgery in NEIGRIHMS, Shillong, Meghalaya, India from January 2019 to December 2021 to find out the clinical presentation of acute pancreatitis patients. Institutional Ethics and Research Committee approval was obtained to conduct the study. All age groups and patients of both sexes were included in this study. The diagnosis of acute pancreatitis was based on presence of appropriate clinical evidence associated with an elevation of serum amylase and/or urinary amylase.

Patients were classified into mild, moderate, and severe acute pancreatitis based on Ranson’s score, Glasgow scoring system.<sup>14</sup> Patients with chronic pancreatitis and malignancy were excluded from the study. On admission detail history were taken. Age, sex, address, symptom and sign were noted carefully. Relevant past history, family history and personal history especially alcohol consumption were recorded. A detailed history was obtained and thorough physical examination was carried out for every subject included in the study, as per the pre-designed proformas. Age, sex, address, symptoms and signs were noted. Relevant past history, family history and personal history, especially history of alcohol consumption were recorded. Associated medical disease, like hypertension, diabetes mellitus, chronic renal failure, bronchial asthma, Chronic Obstructive Pulmonary Disease (COPD) and ischemic heart disease were noted. Results of hematological, biochemical and imaging tests were noted. The most likely etiological factor was identified by analyzing history, physical examination and relevant investigations. Investigations like routine blood test, DC, WBC count, blood sugar estimation, routine urine examination were done. Specific investigation like serum lipase estimation was also done. Ultrasonography of whole abdomen and pelvis were done in all patients to evaluate for the presence of gall stones and common bile duct pathology. CT scan was done after 72 hr of admission. MRCP was done in selected and confusing cases. All patients were initially subjected to conservative measures.

**Inclusion criteria**

- All patients who have been diagnosed to have acute pancreatitis by clinical examination, supported by USG, CT abdomen.
- Patients of all age group and both sexes.

**Exclusion criteria**

- Cases with incomplete documentation.
- Chronic Pancreatitis and pancreatic malignancy.
- Any previous pancreatic surgery.
- Patients contraindicated for contrast enhanced CT abdomen (pregnancy, contrast allergy and renal failure etc.).

**Data Collection**

Data were collected from Medical Record Department (MRD) NEIGRIHMS, patients referred or admitted in the department of General Surgery NEIGRIHMS Hospitals case records of acute pancreatitis from January 2019 to December 2021.patients details to be formulated for this study includes age, sex, clinical

presentations, etiology, CT severity in CTSI, outcomes in terms of hospital stay, need for surgical or minimal intervention for local complications, organ failure and death).

**RESULTS**

In the present study most of the patients were in the age group of 20–39 years (66.6%) followed by 40–59 years (17.5%), 5% in less than 20 years and 5% in the age group of 60–80 years (Table 1). Study subjects composed of both males and females. Males contributed 95% of the patient population and females were 5% only (Table 1). In our study alcohol was identified as the most important etiological factor associated with pancreatitis (Table 2). History of gall stones was found in 5% of cases and history of infections was also found in 5% of the cases. Both the features were present in the male patients. Abdominal pain (100%) and vomiting (79.1%) were the most consistent symptoms in our study (Table 3).

Local complications, defined peripancreatic fluid collection, pancreatic pseudocyst, pancreatic necrosis was observed. Metabolic complications such as acidosis, hypercalcemia, hypoalbuminemia, hypocalcemia was among the most concerned during the management of acute pancreatitis patients in our study.

Among the 120 patients studied 95 had mild pancreatitis 5 had severe pancreatitis and 20 patients had acute on chronic pancreatitis (Table 4).

Three patient of acute necrotizing pancreatitis required Intensive Care Unit (ICU) admission and developed organ failure indicating adverse outcome (Table 5). As demonstrated in Tables 4 and 5 the clinical and CT grading findings corroborate with each other.

**Table 1: Age and gender wise distribution of cases.**

Age (years)	Male	Female
Below 20	7	0
20–39	80	0
40–59	21	6
60–80	6	0
Total	114	6

**Table 2: Patient distribution based on h/o alcohol consumption.**

Alcohol	N = No. of patients	Percentage (%)
Yes	105	87.5
No	15	12.5
Total	120	100

**Table 3: Patient distribution based on symptoms and signs.**

Symptom	N = No. of patients	Percentage (%)	Signs	Frequency	Percentage (%)
Abdominal pain	120	100	Epigastric tenderness	97	80.8
Vomiting	95	79.1	Guarding	60	50
Abdominal distention	15	12.5	Jaundice	17	14.4
Fever	5	4.5	Shock	5	4.1
			Paralytic ileus	10	8.3

**Table 4: Patient severity index based on clinical grades.**

Clinical Grade	N = No. of patients	Hospital stays in days (average)	ICU admission	Organ failure	Mortality
Acute oedematous (mild)	95	10±2	0	0	0
Acute Necrotizing (severe)	5	15±2	3	3	1
Acute on chronic pancreatitis	20	8±2	0	0	0
Total	100				

**Table 5: Patient severity index-based CT Grade.**

CT grade	N = No. of patients	Hospital stays in days (Avg)	ICU admission	Organ failure	Mortality
Normal	15	7	0	0	0
Grade 1-2	80	10±2	0	0	0
Grade 3-5	25	15±2	3	3	1
Total	100				

## DISCUSSION

This was a hospital record based retrospective study on one hundred (100) cases of acute pancreatitis. Only those cases who were admitted in NEIGRIHMS Hospital, Shillong, Meghalaya from January 2019 to December 2021 were subjected to study. Acute pancreatitis is a major surgical challenge to general Surgeons.<sup>9,14,15</sup> It is a complex condition which varies from mild self-limiting inflammation to rapidly deteriorating condition which poses a serious threat to life.<sup>16,17</sup> An early and accurate diagnosis of the disease and rapid institution of therapy might reduce the morbidity and mortality.<sup>18</sup> If the etiological factor/factors are known and can be eliminated, further attacks can be prevented. Clinical criteria i.e., Ranson's criteria, Glasgow scoring system and radiological scoring system can be used for diagnosis and appropriate management.<sup>19</sup>

In this study the age range of the patient was 10 to 70 years with a peak incidence was in the third and fourth decade (63%). Besselink MG *et al.*<sup>20</sup> found median age

of presentation as 53 years. However, in our study the median age of presentation was 36.5 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.*<sup>21</sup> where 47.15% were in the age group of 41-60 years and 43.91% were in the age group 18-40 years. However, the peak incidence at the age of 30 years was reported in a study done by Baig *et al.*<sup>22</sup> indicating younger age group being affected. In USA, Western Europe and Asia gall stones are the most common cause of acute pancreatitis and alcohol is the second most common cause. However, the variation of etiology of pancreatitis depends on country of origin. In our study most cases (90%) were due to consumption of alcohol. In our study 4% of the patients had documented gall stone induced pancreatitis. Sivsankar A *et al.*<sup>23</sup> found alcohol consumption in 45.8% of cases and biliary microlithiasis in 8.3% of cases. In a study by Ramu R *et al.* in Kerala,<sup>24</sup> alcohol induced pancreatitis was higher (42.431%) followed

by idiopathic pancreatitis (36.926%). In another study by Vengadkrishnan *et al.* in Chennai alcohol induced pancreatitis was found to be higher (51%).<sup>25</sup>

In our study, the most common symptom observed was abdominal pain (100%) followed by vomiting (79.1%), Abdominal distension (12.5) and fever (4.5%). This correlates with the studies by Negi *et al.*, where vomiting 42.27% and fever 22.4% were seen respectively.<sup>21</sup> In the study done by Ahmed K *et al.*, the most common symptoms were upper abdominal pain (96%), nausea and vomiting (88%), abdominal distension (40%) and fever (12%) which correlates with our study.<sup>18</sup> Similar findings were observed in the study done by Raghuvanshi S *et al.*, in which the triad of epigastric pain, nausea and vomiting was seen in 75% patients.<sup>26</sup>

The clinical presentation varies from case to case, depending on severity of acute pancreatitis and any underlying co-morbidities. Mild acute pancreatitis present with minimal organ dysfunction and uneventful recovery, while severe acute pancreatitis is associated with local and systemic complications and high mortality. In our study 95 patients were diagnosed as mild (acute oedematous pancreatitis) type with less hospital stay than severe (acute necrotizing pancreatitis) type. Three patients required ICU admission. There was one mortality due to multiorgan failure and other comorbidities. Similar results were obtained in a study done by Ramu R *et al.*<sup>24</sup> in Kerala where 82.1% cases were mild and Ahlawat *et al.*<sup>27</sup> study in North India where 82% cases were classified as mild. Early identification of patients who are at high risk of developing complications and repeated clinical evaluation may have significant therapeutic implications. In the patient population studied it is evident that alcoholism is the main etiological factor as compared to history of gall stones and infections.

## LIMITATIONS OF THE STUDY

Our study was conducted in a resource limited setting with no external funding. One of the limitations of our study was a small sample size, limited documentations retrieval due to which many patients' details including patients as a subject or case for the study has been missed as incomplete documentations of patient's profile leads to exclusion of a case from the study. A prospective clinical study is required to strengthen the present study findings and for better management of acute pancreatitis in hospitals with World Wide common standard guidelines.

## CONCLUSION

Acute pancreatitis is one of the leading causes of increased morbidity and mortality to society. In our study population pain abdomen, nausea and vomiting were the most common symptoms. Clinical assessment along with laboratory markers correlated well with morbidity and mortality. Patients with necrotizing pancreatitis had adverse outcome. Our study identifies alcoholism as one of the most important etiological factors.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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