

Original research article**Acute pancreatitis and its treatment: A clinical investigation****Dr. Mohammed Ibrahim Azeemuddin**

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Abstract

Background: Acute pancreatitis is a prevalent condition that frequently results in life-threatening complications. Even though the majority of attacks are mild and go away on their own, up to twenty percent of patients will experience a severe episode that could prove to be fatal. Despite the many advances that have been made in medical and surgical technology, acute pancreatitis continues to be one of the leading causes of morbidity and mortality. As a result, this difficult topic has been selected as the focus of the current study, in which we will investigate the clinical profile of acute pancreatitis in our facility and the treatment options available for it.

Methodology: This prospective study carried out at Department of General Ayaan Institute of Medical Sciences, Kanakamamidi Village, Moinabad Mandal, Rangareddy Telangana, India.

Results: 40 men and 20 women with acute pancreatitis were studied. The median age was 35 when incidence peaked in the fourth decade. Gallstone disease was the leading cause, followed by alcohol (31%) and idiopathic (16.7%). Most patients reported pain and vomiting. 3 had jaundice. Serum Amylase and Lipase had 80% diagnostic sensitivity. Computed Tomography could detect and image complications non-invasively. 13 patients received enteral nutrition and 3 received parenteral nutrition. 23 ICU patients were hospitalized for 12 days. 53% of 60 patients had a mild disease and 47% a severe attack. 7% and 28.33% of severe cases died.

Conclusion: Our study found younger patients with acute pancreatitis. When possible, diagnose with serum Amylase and Lipase (80% sensitivity). Scoring systems identify patients at risk of a severe attack and should be referred to higher centers if facilities are lacking. Severe cases need a well-equipped ICU. Radiologists, endoscopists and surgeons are needed. Endoscopists and surgeons must act quickly to reduce mortality.

Keywords: Scoring system, acute pancreatitis, CT SCAN, serum amylase

Introduction

Acute exocrine pancreatitis is a common inflammatory disease. It causes severe abdominal pain and organ dysfunction. It can cause pancreatic necrosis, persistent organ failure and 1-5% mortality if left untreated^[1, 2]. In some areas, the incidence rate is twice the global average, resulting in an average patient cost of €10,000. 30-40 cases per 100,000 population are typical. 10-15 cases per 100,000 children are also common^[3]. Despite global incidence rising, Asian rates are stable, according to studies. Acute pancreatitis causes significant short-term and long-term morbidity, which, in a significant minority of cases, results in prolonged debility, recurrent disease, and pancreatic insufficiency that may be exocrine or endocrine. Chronic pain, in addition to the social and financial repercussions of extended hospitalization, can have a significant negative impact on a person's quality of life, but this effect is frequently overlooked^[4, 5].

This failure can be partially attributed to a lack of understanding of pathophysiology, as well as the selection of an inappropriate drug to treat the condition. There is still a problem with the designs of clinical trials because the assumptions made beforehand might not be accurate. These presumptions can take many forms, but some examples include therapeutic windows and complication rates^[6, 7]. The majority of treatments that are currently on the market are geared toward relieving symptoms brought on by various aspects of the disease's complications. Treatments of a more general nature, such as those for organ failure and infections, are included in this category. In the following paragraphs, we will go over some of the most recent developments in treatment that are currently being utilized for acute pancreatitis. We will also emphasize the significance of diagnosis in order to determine the etiology of the condition and identify any complications. The aetiology of the condition and the identification of complications are two factors that can influence the management of the condition both during the acute phase and later on^[8, 9].

Even now, more than a century after its exhaustive description, acute pancreatitis is a prevalent condition that frequently results in life-threatening complications. Even though the majority of attacks are mild and go away on their own, up to twenty percent of patients will experience a severe attack at some point in their lives. These attacks can kill. The clinician must overcome a wide range of symptoms to free the patient from the disease process. Pancreatitis is a Pandora's Box of symptoms, so surgery must be considered for diagnosis, prognosis, and treatment^[10,11].

Our hospital will study the clinical profile and management of acute pancreatitis in this challenging study. This topic was chosen for the study due to emergency situations, multimodality presentations, difficult preoperative diagnosis, and complication management. Despite medical and surgical advances, acute pancreatitis remains a leading cause of morbidity and mortality^[12].

Acute pancreatitis is pancreatic inflammation. This type of pancreatitis involves various tissues and organ systems. It can happen once or repeatedly with reversion to normal histology^[13].

Acute pancreatitis is medically reversible. It differs from chronic pancreatitis in the absence of inflammation, irreversible structural changes, and permanent exocrine and endocrine dysfunction^[14].

Materials and Methods

This prospective study included General Surgery Department admissions from January 2022 to December 2022. Ayaan Institute of Medical Sciences, Kanakamamidi Village, Moinabad Mandal, Rangareddy Telangana, India. 70 patients with 74 acute pancreatitis episodes participated. Ten patients were excluded due to diagnostic failure. 60 patients with 70 episodes were examined^[15].

One of these was a diagnostic criterion:

- High serum amylase.
- High serum lipase levels.
- Acute pancreatitis on ultrasound or CT.

This followed UK acute pancreatitis guidelines.

Acute pancreatitis patients referred by General Surgery or Surgical Gastroenterology must meet diagnostic criteria.

- Non-penetrating abdominal trauma caused pancreatitis.
- Acute pancreatitis recurred.
- Restrictions.
- Chronic pancreatitis acute episodes.

A complete history and physical were done upon admission. Age, gender, address, and clinical presentation-pain, vomiting, jaundice, and abdominal distension-were collected on admission. Alcohol, gallstones, trauma, and drugs were possible causes. Recorded episodes and co-morbidities. U.K. guidelines recommended stratifying patients using the Glasgow criteria for the first 48 hours. Patients with a Glasgow score of 3 or higher were not all investigated, nor were patients who were improving and unaffordable^[16,17].

No measures were taken to recommend a change in the decisions made by the treating unit regarding investigations or treatment. A team of intensivists managed patients with complications and surgical patients in the ICU. Upon discharge or death, patients were classified as mild or severe according to the Atlanta classification. Data were collected on complications, investigations and interventions performed, outcome, hospital and ICU length of stay, and nutritional support method. The prediction of severity using the Glasgow criteria was compared to the stratification of severity using the Atlanta classification^[18].

Two weeks and three months after discharge, patients with mild disease were observed outpatiently. Severe cases were investigated based on their individual merits. As needed, laparoscopic or open Cholecystectomy was offered to patients with biliary pancreatitis. In a few instances, patients with alcoholic pancreatitis were attempted to be de-addicted with the assistance of a psychiatrist^[19].

Results and Observations

Using Excel software, the proforma was used to gather and process data. Pie charts and bar graphs are used to represent the observations. The study included 60 patients with a total of 69 episodes. Acute pancreatitis was the diagnosis for all patients who were admitted. Ten patients were excluded from the final analysis; three were found to have chronic pancreatitis, and five did not meet the diagnostic criteria. Ten patients experienced recurrent episodes over the course of the study. Thus, n = 60 patients with 70 acute pancreatitis episodes were examined.

Sex distribution: Out of the 60 patients 40 (66.66%) were males and 20 (33.33%) females. Twenty (50%) of these individuals were male, while only five (12.5%) were female.

Table 1: Patients Sex distribution

Sex	Number of Patients	Percentage (%)
Male	40	66.66
Female	20	33.33

Age distribution: 35 was the median age of the study group (Range 14-80 yrs). The incidence peaked in the fourth decade.

Table 2: Patients Clinical features

Clinical features	Number of Patients	Percentage (%)
Abdominal pain	39	65
Vomisis	27	45
Abdomenal Distension	8	13.33
Fever	10	16.66
Jaundice	5	8.33

Clinical features: The most common presentation was abdominal pain and vomiting. In 39 (65%) patients, abdominal pain was present, and in 27 (45%) patients, vomiting was observed. Other clinical characteristics included abdominal distention in 8 cases (13.33%), fever in 10 cases (16.66%), and jaundice in 5 cases (8.33%).

Co-Morbidities: 31 patients had diabetes (9), hypertension (13), ischemic heart disease (5), rheumatic heart disease (2), or hypothyroidism (2). Three of the seven diabetics suffered from a severe condition.

Table 3: Co-morbidities

Co-Morbidities	Number of Patients
Diabetes Mallitus	9
High Blood Pressure	13
Arrythmia	5
Rheumatic heart disease	2
Hypothyroidism	2

Etiology: The majority (11) of the 17 patients with biliary pancreatitis had a mild disease. One of these patients had hereditary spherocytosis with gallbladder and common bile duct pigment stones. Eight of the twelve alcoholic patients had a severe condition. Two of these patients passed away. Due to abdominal trauma, three patients developed pancreatitis. Two of the patients who presented early had major pancreatic duct disruption. One patient underwent pancreaticojejunostomy. The second individual received a distal pancreatectomy. Three weeks after the accident, the third patient with infected pancreatic necrosis was referred. Two patients had hypertriglyceridemia, and two had undergone ERCP. One was diagnosed with Hypercalcemia. In 5 cases, no cause could be identified. Three patients who were suspected to have a pancreatic tumor or focal edema underwent laparoscopic surgery. The USG pancreas was found to be normal upon follow-up.

Table 4: Etiology of Patients

Etiology of Patients	Number of Patients
Biliary pancreatitis	17
Hypertriglyceredemia	2
ERCP	2
Hypercalcemia	2
Focal edema of the pancreas	2

Table 5: Diagnostic investigations of pateints

Testing	Carried out in	Supportive diagnosis	Did not support diagnosis
Sr. Amylase	40	20 (50.0%)	18
Sr. Lipase	30	20 (66.66%)	6
Both	25	20 (80%)	5
USG	40	30 (75.0%)	10
CT scan	20	18(90.0%)	2

The serum amylase levels of the patients were measured. In 20 instances (50.0% Sensitivity), it was elevated by more than four times the typical upper limit. Five patients who were recommended for the procedure and had been diagnosed with acute pancreatitis did not have it done. Serum lipase testing was done in 30 cases and it successfully confirmed the diagnosis in 20 of them

(sensitivity: 66.66%). It was carried out typically between the third and fourth day following the onset of symptoms.

25 cases had serum lipase and amylase tests, which together detected 20 cases with an 80% sensitivity. X-rays of the abdomen were frequently taken. Abdominal ultrasonography (USG) was done in 40 cases, and it was successful in 30 of them in confirming the diagnosis.

On 20 patients, Contrast-Enhanced Computed Tomography (CECT) was used, and it consistently supported the diagnosis. Six cases required a C.T scan as the only method of diagnosis because USG, senior lipase, and senior amylase did not support the conclusion. An inflamed and swollen pancreas was found in a patient who had undergone exploratory laparotomy for a possible duodenal ulcer perforation. He was sent to the intensive care unit for treatment because the abdomen was shut.

Severity Stratification and Glasgow Score Correlation: All cases were classified as mild or severe according to the Atlanta classification at the time of discharge. Twenty (50%) patients were diagnosed with a mild illness, while 22 (36.66%) had a severe attack. According to the Glasgow criteria, patients were predicted to have severe or mild disease during the first two days.

Extreme cases: The Glasgow scores accurately predicted the severity of only 8 out of 20 cases.

Mild cases: 30 out of 60 mild cases were accurately predicted by the Glasgow scores. Therefore, a total of 34 (56.66%) cases with mild or severe disease were accurately predicted.

Local complications

Either USG or CT scan detected only acute fluid collections in 20 patients (33.33%). All were treated with prudence. Contrast-enhanced CT scans confirmed the presence of acute necrosis in 10 (16.66%) patients. Five (8.33%) of the patients had infected pancreatic necrosis, while four (6.66%) had pancreatic abscess. These patients were all surgical candidates.

Table 6: Showing the local complications

General complications	Number of Patients	Percentage (%)
Acute fluid	8	20
Pancreatic necrosis (Infected)	4	10
Abscess Pancreatic	2	5

Other Complications

Twenty patients had pleural effusion, predominantly on the left. None of them demanded ascent. There were 10 cases of basal atelectasis. Three patients had pancreatic fistulas; both closed spontaneously after 4 to 6 weeks of conservative treatment. Two patients had deep vein thrombosis and three patients had wound dehiscence (DVT).

Table 7: Common complications

Common complications	Number of Patients
Effusion (Pleural)	15
Atelectasis (Basal)	8
Fistule Pancreatic	2
Dehiscence Wound	2
Thrombosis (Deep vein)	1

Organ Failure and Mortality

Chest X-rays revealed ARDS in 8 patients who required mechanical ventilation. Four of the six patients with acute renal failure (ARF) required haemodialysis. 1 patient had severe gastrointestinal (GI) bleeding, as indicated by the presence of a large amount of malena. This patient underwent an emergency colonoscopy after which he developed a caecal perforation. Two patients died within seven days, while the other passed away after a protracted waning and waxing ICU stay. The third patient underwent four necrosectomies.

Nutritional support

Twenty patients with acute severe pancreatitis received nutritional support. 15 patients received naso-jejunal (NJ) feeding for a range of 6 to 55 days, while 1 patient received jejunostomy feeding. The duration of total parenteral nutrition (TPN) for four patients ranged from 10 to 44 days.

Hospitalization and intensive care unit treatment

The average length of hospital stay was 12 days (Range-3 to 65 days). The median hospital stay for severe cases was 13.5 days, compared to 10 days for mild cases. 25 patients were treated in the ward,

while 12 required ICU care ranging from 2 to 85 days for a total of 12 patients.

Discussion

Patients who are diagnosed with severe acute pancreatitis require extensive medical resources including imaging, endoscopy, surgery, and intensive care. This study was carried out at the Department of General Surgery, Ayaan Institute of Medical Sciences, Kanakamamidi Village, Moinabad Mandal, Rangareddy Telangana, India. Which is a tertiary care facility with radiology and endoscopy services that are available at all hours of the day and night. All endoscopies are done by Gastroenterologists. Patients who fell within a patient's financial means were directed to medical facilities that contained intensive care units that were run by a specialized team of intensivists. There are surgeons who specialize in treating pancreaticobiliary conditions who are available^[20].

According to the findings of this particular study, the likelihood of acute pancreatitis occurring in males is approximately 2.5 times higher than in females. Males were found to be affected more frequently than females, according to the findings of a prospective audit conducted in seven hospitals in South England (henceforth referred to as the South England Audit)^[21].

The fourth decade of life, which is the most productive age group, was the time when the incidence was at its highest. Comparing the results of our study, which had a median age group of 35 years, to those of the South England Audit, which had a median age group of 54 years, we can see that a younger age group is affected. According to the findings of another prospective series conducted by the University of Edinburgh in the United Kingdom, the median age was 58 years.

According to the findings of our investigation, biliary pancreatitis is the most common type, making up forty percent of all cases. In addition to sludge, these patients had gall bladder calculi, CBD calculi, or both of these types of calculi. Alcohol was the second most common cause, accounting for 35% of the cases, followed by a variety of other factors, which accounted for 20%. Twenty percent of the cases had no discernible cause, which is well within the range of twenty to twenty-five percent that is recommended by U.K. guidelines. Gallstones were found to be the underlying cause in 49% of the cases that were investigated in North India. It's possible that the higher prevalence of gallstones in the North Indian population is to blame for this higher incidence^[22, 23].

The South England Audit found that 32 percent of cases involved severe diseases. In our sample, severe cases made up 47.27 percent of the total. It is possible that the large number of patients who have been referred to our hospital is to blame for this increased incidence of severe cases. Twenty patients were referred (33.33%), and of those twenty patients, fifteen (25%) had a severe disease^[24].

When compared to the Atlanta criteria, the Glasgow scores accurately predicted the severity in 40 of our cases, which is a 66.66 percent success rate. Because not every case was investigated in the same manner, we are unable to assign individual Glasgow score values in our series any significance or use them to make correlations between outcomes. There were a lot of drawbacks, such as the fact that it was expensive and difficult to persuade patients to get checked out when they were getting better and were supposed to be released from the hospital within the next two days^[25].

In our study, a higher percentage of patients experienced local complications such as necrosis, infected pancreatic necrosis (IPN) and abscess than in the South England Audit. This was the case even though both sets of patients had the same overall outcome. This higher number may be attributable to a greater proportion of severe cases; 45 percent in our study compared to 32 percent in the South England Audit^[26].

Improvements to Mortality Management have resulted in lower mortality rates, particularly in specialized units that have access to technical resources and personnel with extensive experience. Our sample had an overall mortality rate that was 8% lower than the rate recommended by guidelines in the United Kingdom, which was 10%. The mortality rate was 33% for severe cases, which is higher than the rate of 27% found in the South England Audit.

Both studies found that the median length of hospital stay was almost exactly the same. Our research showed that patients with severe disease were successfully treated in 13.5 days, whereas the South England Audit found that it took 16 days. According to the findings of our research, the typical length of hospitalization for mild cases was 10 days, whereas the South England Audit found that it only lasted 7 days^[27].

Conclusion

In the course of our research, we came to the conclusion that younger age groups had a significantly higher incidence of acute pancreatitis. When making a diagnosis, both serum amylase and lipase were used whenever it was possible to do so (sensitivity of 80%). Within the first 48 hours of the investigation, ideally every case should have been categorized in accordance with one of the scoring systems. Patients who are more likely to experience a severe attack can be identified with the help of scoring systems. Severe cases have to be treated in an intensive care unit that is fully stocked with the necessary equipment because they may require massive fluid resuscitation, mechanical ventilation, and haemodialysis. The assistance of specialists in radiology, endoscopy, and the intensive care unit is

absolutely necessary. Endoscopists and surgeons have a responsibility to act quickly in order to reduce the risk of morbidity and mortality. It is important to refrain from drinking alcohol and have a cholecystectomy in order to forestall further attacks.

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