Original Article

Clinical Profile, Etiology, Severity and Outcomes of Acute Pancreatitis in a Tertiary Care Hospital: A Prospective Clinical Study

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Abstract

Background: Acute pancreatitis is an important cause of acute abdomen, with a course ranging from mild self-limited inflammation to severe systemic illness with organ failure and death. Early recognition of etiology, severity and complications is essential for rational triage and supportive management. The objective is yo evaluate age and sex distribution, etiological factors, clinical presentation, diagnostic profile, severity, complications and outcome of patients admitted with acute pancreatitis. **Material and Methods:** This prospective clinical study included 100 patients diagnosed with acute pancreatitis in the Department of General Medicine, Osmania General Hospital, Hyderabad, from 2012 to 2014. Patients older than 12 years were included. Patients with chronic pancreatitis and acute-on-chronic pancreatitis were excluded. Clinical features, laboratory findings, ultrasonography, contrast-enhanced computed tomography when indicated, complications, recurrence, hospital stay and mortality were recorded. **Results:** Among 100 patients, 93 were male and 7 were female. The mean age was 38.1 ± 8.8 years, and the largest age group was 31-40 years. Pain abdomen was present in all patients, followed by nausea/vomiting in 92%. Alcohol was the leading etiology, accounting for 76% of cases, followed by biliary disease in 16%. Serum lipase was elevated in 94% and serum amylase in 82%. Ultrasonography was diagnostic in 64%. Mild acute pancreatitis was observed in 78%, while 22% had severe disease. Pleural effusion was the commonest complication. Recurrence occurred in 4%, and mortality was 8%. **Conclusion:** Acute pancreatitis in this tertiary-care series predominantly affected young adult males, with alcohol as the principal etiology. Most patients had mild disease and responded to conservative treatment. Severe disease was associated with local complications, organ failure and mortality, highlighting the value of early assessment and vigilant supportive care.

Keywords: Acute pancreatitis; Alcoholic pancreatitis; Biliary pancreatitis; Complications; Severity; Outcome.

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Introduction

Acute pancreatitis is an acute inflammatory disorder of the exocrine pancreas and remains one of the leading gastrointestinal causes of hospital admission worldwide. Its clinical spectrum is wide, extending from mild interstitial inflammation with rapid recovery to severe necrotizing pancreatitis with systemic inflammatory response, persistent organ failure and death.[1,2] The global burden of pancreatitis has increased over recent decades, although incidence, etiological pattern and outcomes vary considerably across regions and populations.[3] Population-based studies have consistently identified gallstones and alcohol as the dominant etiologies, with alcohol-related disease more often affecting younger men and gallstone-related disease more frequent among older adults and women.[4]

The diagnosis of acute pancreatitis is generally established when two of three features are present: characteristic abdominal pain, serum amylase or lipase elevation at least three times the upper limit of normal, and imaging findings consistent with pancreatic inflammation.[5-8] Lipase is preferred in many clinical settings because it remains elevated longer than amylase and has better diagnostic performance in delayed presentations. Ultrasonography retains an important role for identifying gallstones and biliary dilatation, whereas contrast-enhanced computed tomography is reserved for diagnostic uncertainty, failure to improve, or suspected complications.[6,8,9]

Severity assessment is central to management because early triage determines the level of monitoring, resuscitation intensity and need for specialist intervention. The revised Atlanta classification defines mild disease as absence of organ failure and local or systemic complications, moderately severe disease as transient organ failure or local complications, and severe disease as persistent organ failure.[5] Several clinical and radiological

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scores have been evaluated for early prediction, yet no single scoring system is sufficient in isolation; repeated clinical assessment remains vital.[10,11] Current management emphasizes early fluid optimization, effective analgesia, early oral or enteral feeding when feasible, treatment of underlying biliary disease, and a step-up approach for infected necrosis.[6,7]

Regional hospital-based studies provide useful insight into local etiological patterns, delays in presentation, complication burden and resource-specific outcomes. Such data are particularly valuable in centers serving mixed urban and referral populations, where alcohol use, biliary disease, diagnostic access and referral pathways differ from international cohorts. The present study was conducted to evaluate the clinical profile of acute pancreatitis in a tertiary-care hospital. The objectives were to study age and sex distribution, identify etiological factors, describe clinical presentation, assess diagnostic findings, classify disease severity, document complications and evaluate patient outcomes.

Materials and Methods

Study design and setting: This prospective clinical study was conducted in the Department of General Medicine, Osmania General Hospital, Hyderabad, during 2012-2014. A total of 100 patients admitted with a diagnosis of acute pancreatitis were included. The study was designed to describe the clinical profile, etiological pattern, diagnostic findings, disease severity, management and short-term hospital outcome. Ethical approval details and institutional permission number should be inserted by the authors before journal submission.

Study population: All patients admitted to the medical wards with acute pancreatitis and aged more than 12 years were eligible. Patients below 12 years, patients with established chronic pancreatitis and patients with acute-on-chronic pancreatitis were excluded. After admission, each patient underwent detailed history taking and clinical examination. Information was recorded regarding abdominal pain, nausea or vomiting, abdominal distension, fever, jaundice, alcohol intake, previous biliary symptoms, drug exposure, comorbid illness and recurrence during the study period.

Diagnostic assessment: Diagnosis was based on compatible clinical presentation supported by biochemical and radiological evidence, consistent with accepted diagnostic criteria for acute pancreatitis [5,8]. Routine investigations included complete hemogram, random blood sugar, blood urea nitrogen, serum calcium, serum amylase, serum lipase, hematocrit and liver enzymes. Ultrasonography of the abdomen was performed routinely to support diagnosis, evaluate the biliary tract and detect collections or other complications. Contrast-enhanced computed tomography of the abdomen was performed when the diagnosis was doubtful, ultrasonography was not confirmatory, severe disease was suspected, or clinical improvement was not observed after 72 hours.

Severity classification and management: Patients were classified as having mild acute pancreatitis when the course was uneventful, organ dysfunction was absent or transient and local complications were not present. Severe acute pancreatitis was defined by persistent organ failure or local complications such as necrosis, abscess or pseudocyst, in keeping with contemporary severity concepts.[5,7] Management focused on early resuscitation, fluid and electrolyte correction, analgesia, bowel rest when clinically required, nutritional support, monitoring for organ failure and treatment of associated biliary disease. Complications were managed conservatively unless drainage or specific intervention was necessary.

Data analysis: Data were entered in a structured proforma. Variables included demographic characteristics, presenting symptoms and signs, etiological category, laboratory abnormalities, imaging findings, severity grade, complications, procedures, recurrence, duration of hospital stay and mortality. Descriptive statistics were used. Categorical variables are presented as frequency and percentage. Continuous variables are summarized as mean with standard deviation when available. As the study was primarily descriptive, inferential comparisons were not applied.

Results

The study included 100 patients with acute pancreatitis. There was marked male predominance, with 93 males and 7 females. The age range was 18-60 years, and the mean age was 38.1 ± 8.8 years. The highest proportion of patients belonged to the 31-40-year age group, which accounted for 62% of cases. The detailed age and sex distribution is shown in [Table 1].

Table 1: Age and sex distribution of patients

Age group (years)	Male n (%)	Female n (%)	Total n (%)
13-20	1 (1.1)	0 (0.0)	1 (1.0)
21-30	16 (17.2)	2 (28.6)	18 (18.0)
31-40	58 (62.4)	4 (57.1)	62 (62.0)
41-50	10 (10.8)	1 (14.3)	11 (11.0)
51-60	8 (8.6)	0 (0.0)	8 (8.0)
61-70	0 (0.0)	0 (0.0)	0 (0.0)
Total	93 (100.0)	7 (100.0)	100 (100.0)

Abdominal pain was universal and was recorded in all patients. Nausea or vomiting was the second most frequent symptom, followed by abdominal distension, fever and jaundice. On examination, epigastric tenderness was present in every patient. Ascites was observed in 22%, shock in 12%, hematemesis in 8% and abdominal mass in 4%. These presenting symptoms and clinical signs are presented in [Table 2,3 and Figure 1].

Table 2: Clinical symptoms at presentation

Symptom	No. of patients	Percentage
Pain abdomen	100	100.0
Nausea/vomiting	92	92.0
Abdominal distension	36	36.0
Fever	24	24.0
Jaundice	8	8.0

Table 3: Clinical signs at examination

Sign	No. of patients	Percentage
Epigastric tenderness	100	100.0
Mass abdomen	4	4.0
Ascites	22	22.0
Shock	12	12.0
Hematemesis	8	8.0

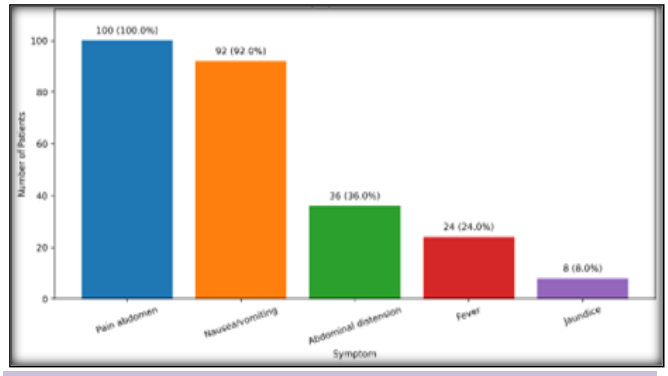

Figure 1: Clinical symptoms at presentation

Alcohol was the predominant etiological factor and was identified in 76% of patients. Biliary pancreatitis accounted for 16% of cases. Autoimmune pancreatitis was documented in 4%, while drug-induced and idiopathic pancreatitis contributed 2% each. The etiological distribution is summarized in [Table 4 and Figure 2].

Biochemical assessment showed serum lipase elevation in 94% and serum amylase elevation above 240 IU/L in 82% of patients. Hyperglycemia, hypocalcemia and raised hematocrit were also observed. Ultrasonography of the abdomen was diagnostic in 64% of patients and non-diagnostic in 36%. The laboratory and ultrasonographic findings are given in [Table 5].

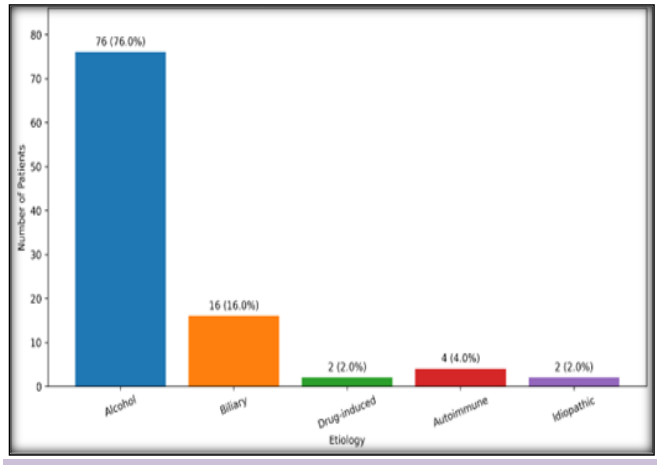

Figure 2: Etiological distribution of acute pancreatitis

Table 4: Etiological distribution of acute pancreatitis

Etiology	No. of patients	Percentage
Alcohol	76	76.0
Biliary	16	16.0
Drug-induced	2	2.0
Autoimmune	4	4.0
Idiopathic	2	2.0

Table 5: Laboratory and ultrasonographic findings

Investigation/finding	No. of patients	Percentage
Random blood sugar >180 mg/dL	24	24.0
Blood urea nitrogen >45 mg/dL	16	16.0
Serum amylase >240 IU/L	82	82.0
Serum lipase >150 U/L	94	94.0
White blood cell count >15,000/mm3	8	8.0
AST >200 IU/L	8	8.0
Hematocrit >44%	22	22.0
Serum calcium <8 mg/dL	24	24.0
USG abdomen diagnostic	64	64.0
USG abdomen non-diagnostic	36	36.0

Most patients had mild acute pancreatitis. Mild disease was seen in 78 patients, while 22 patients were classified as severe acute pancreatitis because of complications or persistent organ dysfunction. The severity distribution and complications are shown in [Table 6 and 7].

Table 6: Severity of acute pancreatitis

Severity	No. of patients	Percentage
Mild acute pancreatitis	78	78.0
Severe acute pancreatitis	22	22.0

Table 7: Complications observed during admission

Complication	No. of patients	Percentage
Pseudocyst	12	12.0
Ascites	16	16.0
Pleural effusion	20	20.0
Pancreatic necrosis	12	12.0
Venous thrombosis	4	4.0
Gastrointestinal bleeding	8	8.0
Organ failure	8	8.0

Pleural effusion was the commonest complication, occurring in 20% of patients, followed by ascites in 16%, pseudocyst in 12%, pancreatic necrosis in 12%, gastrointestinal bleeding in 8%, organ failure in 8% and venous thrombosis in 4%. Most complications were managed conservatively. One patient with bilateral pleural effusion required bilateral intercostal drainage. Four patients had recurrence during the study period. The mean hospital stay was 5.2 days in mild disease and 16.7 days in severe disease. Overall, eight deaths were recorded, giving a mortality of 8%. Outcome indicators are presented in [Table 8 and Figure 3]

Table 8: Recurrence, hospital stay and mortality

Outcome indicator	Value
Recurrence during study period	4 patients (4.0%)
Mean hospital stay in mild disease	5.2 days
Mean hospital stay in severe disease	16.7 days
Deaths	8 patients (8.0%)
Attributed causes of death	Gastrointestinal bleeding: 2; multiorgan failure: 6

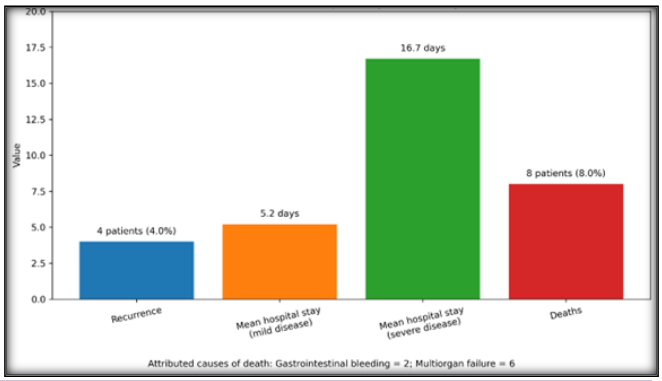

Figure 3: Recurrence, hospital stay and mortality

Discussion

The present study describes the clinical profile and short-term outcome of 100 patients with acute pancreatitis admitted to a tertiary-care hospital. The cohort showed strong male predominance and a relatively young mean age. This pattern is clinically meaningful because alcohol-related pancreatitis is frequently reported in younger men, whereas gallstone pancreatitis is more common in older and female populations. The finding that 76% of cases were alcohol-related explains the age-sex pattern and differs from several Western and southern European series where biliary disease predominates.

Pain abdomen was present in all patients and nausea or vomiting in 92%, confirming that typical epigastric pain with gastrointestinal symptoms remains the key clinical entry point for diagnosis. Universal epigastric tenderness also supports the importance of bedside assessment, particularly where immediate cross-sectional imaging is not available. Jaundice was seen in a smaller proportion, consistent with the lower share of biliary etiology in this series. The clinical pattern broadly aligns with accepted diagnostic criteria, in which characteristic pain is interpreted alongside enzyme elevation and imaging features.[5,8]

Serum lipase was elevated in a greater proportion of patients than serum amylase. This agrees with current diagnostic practice, as lipase has superior utility in delayed presentations and remains abnormal for longer after symptom onset.[6,8] Ultrasonography was diagnostic in 64% of patients. This moderate yield is expected because bowel gas and body habitus can limit pancreatic visualization, although ultrasound remains valuable for detecting gallstones and biliary obstruction. Computed tomography was appropriately reserved for uncertain diagnosis, suspected severe disease and lack of clinical improvement, consistent with imaging recommendations and prognostic use of CT severity assessment.[9,10]

Severe acute pancreatitis was observed in 22% of patients, while 78% had mild disease. This distribution is close to the widely recognized observation that most cases are mild, with a smaller subgroup developing organ failure or local complications.[2,5] Pleural effusion, ascites, pseudocyst and necrosis represented the main complications. Mortality was 8%, reflecting the risk carried by gastrointestinal bleeding and multiorgan failure. Modern studies emphasize that persistent organ failure is the strongest determinant of death, and available scoring systems have only modest early predictive accuracy.[10,11]

Management in this series was predominantly conservative, with emphasis on resuscitation, analgesia, nutrition and complication

surveillance. This approach is consistent with contemporary guidelines that prioritize supportive care, early enteral feeding when tolerated, avoidance of unnecessary interventions, and selective treatment of biliary obstruction or infected necrosis.[12,14] For necrotizing pancreatitis requiring intervention, evidence supports minimally invasive step-up strategies over primary open necrosectomy.[13] Overall, the study highlights a local phenotype of alcohol-predominant pancreatitis and reinforces early severity recognition as the principal route to better outcomes.

Limitations: The study was conducted in a single tertiary-care hospital and included 100 patients, which limits wider generalization. Etiological categorization depended on available clinical, biochemical and imaging data. Long-term follow-up after discharge was not performed, so delayed recurrence, endocrine insufficiency, exocrine insufficiency, late pancreatic collections and quality-of-life outcomes were not assessed. Advanced severity scores were not uniformly analyzed across all patients.

Conclusion

Acute pancreatitis in this tertiary-care cohort predominantly affected young adult males, with alcohol as the leading etiological factor. Abdominal pain and nausea or vomiting were the commonest clinical features, while serum lipase showed the highest biochemical yield. Most patients had mild disease and improved with conservative management. Severe acute pancreatitis was associated with pleural effusion, ascites, pseudocyst, pancreatic necrosis, gastrointestinal bleeding and organ failure. Mortality was confined to patients with major systemic or bleeding complications. Early diagnosis, careful etiological assessment, repeated severity evaluation, adequate resuscitation, nutritional support and timely recognition of complications remain essential for reducing adverse outcomes in acute pancreatitis in similar hospital settings during routine tertiary clinical practice.

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Conflicts of interest

There are no conflicts of interest.

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