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Clinical Presentation and Risk Factors of Acute Pancreatitis: A Retrospective Study

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Abstract

Introduction: Acute pancreatitis is an acute inflammatory condition of the pancreas involving varying degrees of regional tissues and distant organ systems. This study aims to investigate the clinical presentations and risk factors associated with acute pancreatitis to enhance understanding and guide more effective management strategies. ***Aim of the study:*** The aim of this study was to evaluate the clinical presentation and risk factors associated with acute pancreatitis. ***Methods:*** This retrospective study was conducted at Holy Family Red Crescent Medical College Hospital, Dhaka, from July 1, 2021, to December 31, 2023, spanning 2.6 years. The study included 42 consecutive patients diagnosed with acute pancreatitis. Data were collected by reviewing patient records for demographic details, clinical presentations, etiological factors, complications, and outcomes. Statistical analyses were conducted using SPSS version 23, with categorical variables expressed as numbers and percentages. ***Result:*** The majority of the 42 patients included in the study were within the age group of 20-39 years, 24 (57.14%) patients The most common clinical presentation was abdominal pain, reported by 40 (95.24%) patients. Biliary causes, including gallstones and common bile duct stones, were identified as the predominant etiology in 27 (64.29%) patients. Complications included necrotizing pancreatitis in 4 (9.52%) patients. Regarding outcomes, 27 (64.29%) patients recovered and were discharged. ***Conclusion:*** Effective management, emphasizing early diagnosis and treatment, is crucial for reducing the morbidity and mortality associated with acute pancreatitis.

Keywords: Acute Pancreatitis, Clinical Presentation, Risk Factors, Pancreatitis Etiology, Gastroenterology.

INTRODUCTION

Acute pancreatitis (AP) is an acute inflammatory condition of the pancreas involving varying degrees of regional tissues and distant organ systems [1]. It is a medical emergency and a leading cause of hospital admission for gastrointestinal issues. The risk, clinical features, and severity of acute pancreatitis vary based on age, sex, lifestyle, and co-morbidities [2]. The most common causes include gallstones, accounting for 40% of cases, and alcohol abuse, which accounts for 35% of cases [3]. To diagnose acute pancreatitis, two of the following three criteria must be met: severe, persistent abdominal pain that typically starts suddenly and radiates to the back, serum lipase (or amylase) levels that are at least three times the normal upper limit, and typical findings on transabdominal ultrasound and contrast-enhanced computed tomography.

Patients with acute pancreatitis frequently exhibit abdominal pain and nausea. For a diagnosis of acute pancreatitis, the revised Atlanta classification requires meeting at least two of the following conditions: (a) abdominal pain indicative of pancreatitis, (b) serum amylase or lipase levels exceeding three times the normal upper limit, or (c) distinctive imaging results [4]. Common causes across various age groups include biliary tract disease, adverse drug reactions, systemic conditions, and trauma [5].

Understanding the nature and severity of acute pancreatitis is essential for implementing timely interventions to prevent fatalities and decrease morbidity and mortality. The primary etiological factors are gallstones and alcohol abuse, each responsible for 30–50% of cases. Gallstones may induce acute pancreatitis if they become lodged at the duodenal papilla, obstructing pancreatic duct drainage [6, 7]. Alcohol consumption is another significant risk factor, with peak incidence observed in men aged 35-44 and women aged 25-34. Daily intake of 50-80 grams (4-7 drinks) markedly increases the risk of both acute and chronic pancreatitis. Additionally, elevated triglyceride levels contribute to 10% of acute pancreatitis cases, with risk further amplified by conditions such as obesity and poorly controlled diabetes [8]. The Atlanta classification system requires a serum triglyceride level exceeding 1,000 mg/dl for the diagnosis of hypertriglyceridemia-induced pancreatitis. In populations with triglyceride levels above this threshold, the likelihood of experiencing at least one episode of acute pancreatitis is around 20% [9-12].

A thorough examination of these factors can provide valuable insights into the diverse manifestations and underlying causes of acute pancreatitis. This study aims to investigate the clinical presentations and risk factors associated with acute pancreatitis to enhance understanding and guide more effective management strategies.

Objectives

A. To evaluate the clinical presentation and risk factors associated with acute pancreatitis.

METHODOLOGY & MATERIALS

This retrospective study was conducted at the Department of Surgery, Holy Family Red Crescent Medical College Hospital, Dhaka, from July 1, 2021, to December 31, 2023, spanning 2.6 years. The study included 42 consecutive patients diagnosed with acute pancreatitis.

Inclusion Criteria:

A. Patients aged 12 to 80 years.
B. Both sexes.
C. Diagnosed with acute pancreatitis based on clinical, biochemical, and imaging findings.

Exclusion Criteria:

A. Age below 12 years or above 80 years.
B. Chronic pancreatitis or pancreatic malignancy.
C. Acute on chronic pancreatitis.
D. Pancreatic injury.

Institutional approval was obtained from the IRB of Holy Family Red Crescent Medical College Hospital, with ethical considerations adhering to the Helsinki Declaration. Informed consent was obtained from all participants. Data were collected by reviewing patient records for demographic details, clinical presentations, etiological factors, complications, and outcomes. Clinical history included age, sex, symptoms, past and family history, personal history (notably alcohol consumption), and associated conditions (e.g., diabetes, hypertension, chronic renal failure). Patients underwent clinical examinations. Management included intravenous fluids, analgesics, antibiotics, and supportive care, with nasogastric tubes and Foley catheters as needed, and ICU admission for severe cases. Most complications were managed conservatively. Data were analyzed using SPSS version 23, with categorical variables expressed as numbers and percentages. Ethical clearance ensured confidentiality and participants' right to withdraw.

RESULT

Table 1: Demographic Characteristics of the Study patients (n=42).

Variables		No of patients	Percentage (%)
Age group (years)	<20	1	2.38
	20-39	24	57.14
	40-59	11	26.19
	60-80	6	14.29
Gender	Male	14	33.33
	Female	28	66.67
Socioeconomic status	Lower	6	14.29
	Lower middle	25	59.52
	Middle	9	21.43
	Upper middle	2	4.76

The age distribution shows that the majority of patients were within the age group of 20-39 years, accounting for 57.14% of the participants, followed by 26.19% in the 40-59 years age group, 14.29% in the 60-80 years age group, and only 2.38% were younger than 20 years. In terms of gender distribution, a higher number of female patients were included in the study, making up 66.67% of the respondents, while the remaining 33.33% were male. Regarding socioeconomic status, the majority of patients fell within the lower-middle category, comprising 59.52% of the study participants, followed by 21.43% in the middle category,

14.29% in the lower category, and 4.76% in the upper-middle category.

Table 2: Clinical Characteristics of the Study Patients (n=42)

Variables	No of patients	Percentage (%)
Abdominal pain	40	95.24
Nausea and vomiting	38	90.48
Fever	9	21.43
Epigastric tenderness	29	69.05
Abdominal distension	14	33.33
Jaundice	6	14.29
Dehydration	1	2.38
Guarding	20	47.62

Abdominal pain was the most common symptom, reported by 40 patients (95.24%). Nausea and vomiting were also highly prevalent, affecting 38 patients (90.48%). Epigastric tenderness was observed in 29 patients (69.05%), while guarding was noted in 20 patients (47.62%). Abdominal distension was reported by 14 patients (33.33%), and fever by 9 patients (21.43%). Jaundice was seen in 6 patients (14.29%), while dehydration was the least commonly reported symptom, affecting only 1 patient (2.38%).

Table 3: Distribution of the study patients by aetiology (n=42)

Aetiology	No of patients	Percentage (%)
Biliary (gall stone/CBD stone)	27	64.29
Alcohol	11	26.19
Idiopathic	2	4.76
Trauma	1	2.38
Infections	1	2.38

Table 3 shows the aetiology of acute pancreatitis in the study patients. Biliary causes, including gallstones and common bile duct stones, were the most common, accounting for 27 patients (64.29%). Alcohol was the second most prevalent cause, reported by 11 patients (26.19%). Idiopathic causes were observed in 2 patients (4.76%). Trauma and infections were each responsible for 1 patient (2.38%).

Table 4: Distribution of the study patients by complications (n=42)

Complications	No of patients	Percentage (%)
Necrotizing pancreatitis	4	9.52
Pancreatic pseudocyst	2	4.76
ARDS	3	7.14
Pleural effusion	3	7.14
Death	1	2.38
No complications	29	69.05
Total	42	100.00

Table 4 shows the complications observed in the study patients. Necrotizing pancreatitis was noted in 4 patients (9.52%). Pancreatic pseudocyst occurred in 2 patients (4.76%). Acute respiratory distress syndrome (ARDS) and pleural effusion were each observed in 3 patients (7.14%). There was 1 death (2.38%) reported. The majority of patients, 29 (69.05%), did not experience any complications.

Table 5: Distribution of the study patients by outcome (n=42)

Outcome	No of patients	Percentage (%)
Recover and discharged	27	64.29
Referred	7	16.67
Leave without medical advice	6	14.29
Expired	2	4.76
Total	42	100.00

Table 5 shows the outcomes of the study patients. Out of 42 patients, 27 (64.29%) recovered and were discharged, 7 (16.67%) were referred, 6 (14.29%) left without medical advice, and 2 (4.76%) expired.

DISCUSSION

This study investigated the clinical presentations and risk factors associated with acute pancreatitis in 42 patients at Holy Family Red Crescent Medical College Hospital, Dhaka.

In this study, the age distribution shows that the majority of patients were within the age group of 20-39 years, accounting for 57.14% of the participants, followed by 26.19% in the 40-59 years age group, 14.29% in the 60-80 years age group, and only 2.38% were younger than 20 years. This is comparable to other studies, which noted that most cases of acute pancreatitis were seen in the 20–39-year age group [13-15].

In this study, a higher number of female patients were included, making up 66.67% of the respondents, while the remaining 33.33% were male. Zarnescu *et al.*, [16]. demonstrated a higher incidence of pancreatitis among females.

In this study, abdominal pain was the most common symptom, reported by 40 patients (95.24%). Nausea and vomiting were also highly prevalent, affecting 38 patients (90.48%). Epigastric tenderness was observed in 29 patients (69.05%), while guarding was noted in 20 patients (47.62%). Abdominal distension was reported by 14 patients (33.33%), and fever by 9 patients (21.43%). Jaundice was seen in 6 patients (14.29%), with dehydration being the least commonly reported symptom, affecting only 1 patient (2.38%). Similar studies conducted by Das SK *et al.*, [17] and Ahmed K *et al.*, [18] show that abdominal pain was the most common presentation, reported in 100% and 96% of cases, respectively. Vomiting was also highly prevalent in their studies, observed in 85% and 88% of cases, respectively. Additionally, Mathan *et al.*, [19] reported that abdominal pain was the most common symptom (100%), followed by vomiting (85%), guarding (50%), and jaundice (14%). This highlights the consistency in symptom presentation across different studies, reinforcing the importance of recognizing abdominal pain and nausea as key indicators of acute pancreatitis.

In this study, biliary causes, including gallstones and common bile duct stones, were the most common etiology of acute pancreatitis, affecting 27 patients (64.29%). Alcohol-related pancreatitis was the second most prevalent cause, reported in 11 patients (26.19%). Idiopathic causes were observed in 2 patients (4.76%), and trauma and infections each accounted for 1 patient (2.38%). Similar findings were reported by Jha *et al.*, [20], who identified gallstones as the leading cause in 63% of cases. Simoes *et al.*, [21]. found alcohol consumption to be the most common etiology (39.3%), followed by gallstones (24.1%). Yadav *et al.*, [15] also reported gallstones as the most common cause (71.1%), with alcohol-induced pancreatitis observed in 26.6% of cases.

In this study, the complications observed included necrotizing pancreatitis in 4 patients (9.52%), pancreatic pseudocyst in 2 patients (4.76%), and acute respiratory distress syndrome (ARDS) and pleural effusion in 3 patients each (7.14%). Additionally, there was 1 reported death (2.38%). Notably, the majority of patients, 29 (69.05%), did not experience any complications. Kurrey *et al.*, [22] found that 16% of patients suffered from necrotizing pancreatitis, while 4% developed pseudocysts.

In this study, Table 5 shows that out of 42 patients, 27 (64.29%) recovered and were discharged, 7 (16.67%) were referred for further management, 6 (14.29%) left without medical advice, and 2 (4.76%) expired. These results indicate that while the majority of patients had favorable outcomes, with a significant proportion recovering and being discharged, there remains a need for enhanced patient education and follow-up. The relatively high number of patients leaving against medical advice highlights areas for improvement in patient engagement and adherence to treatment recommendations.

Limitations of the study

The study has several limitations:

- Conducted at a single institution, which may limit the generalizability of the findings to other settings with different patient populations or healthcare practices.
- The smaller sample size could impact the statistical power and limit the ability to generalize the results to a broader population.
- The retrospective nature of the study may introduce selection bias that could influence the study's outcomes.

CONCLUSION

Acute pancreatitis is a common condition with varied clinical presentations and risk factors. In this study, a female predominance was noted, with abdominal pain being the most frequently reported symptom. Gallstones emerged as the leading cause, followed by alcohol consumption. While most patients experienced a favorable outcome, a significant proportion developed complications such as necrotizing pancreatitis and ARDS. Effective management, emphasizing early diagnosis and treatment, is crucial for reducing the associated morbidity and mortality.

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