

Original Research Article

Retrospective analysis of etiological factors and clinical presentation of pancreatitis in patients of a tertiary care hospital

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ABSTRACT

Background: Acute pancreatitis is a complicated illness with a wide range of local and systemic consequences that surgeons throughout the world deal with. This study evaluated the etiology and clinical presentation of acute pancreatitis patients retrospectively in a tertiary health care center.

Methods: This study is a cross-sectional, retrospective hospital-based study that was conducted from Feb 2012 to Feb 2020 which was conducted on 500 patients who had acute pancreatitis in the department of general surgery and gastroenterology in a tertiary health care center.

Results: Out of the total of 500 patients, 75% of males had acute pancreatitis and 25% of females had acute pancreatitis. The 52% of the patients had epigastric pain without radiating to the back and it was the most common clinical presentation followed by 30% of the patients had epigastric pain radiating to the back followed by generalized abdominal pain (18%). Nausea and vomiting were observed in most of the cases (71%). Alcohol-induced pancreatitis was the most common (41.2%) among the 500 cases, followed by idiopathic pancreatitis (36.2%). The acute fluid collection was identified in 26.6% of cases. The most prevalent systemic consequence was respiratory system involvement (15%).

Conclusions: The most common clinical manifestation was epigastric pain with no radiation to the back. In our study, the incidence of alcoholic pancreatitis (41.2%) and idiopathic pancreatitis (36.2%) was slightly greater, prompting us to look for additional aetiologies in the idiopathic category in future investigations.

Keywords: Clinical presentation, Acute pancreatitis, Etiology

INTRODUCTION

Acute pancreatitis is a type of pancreatitis that occurs suddenly. Abdominal pain is the most common symptom. It normally passes in a few days, although it can become severe and very serious at times. Gallstones and excessive alcohol intake are the two most common causes of acute pancreatitis.¹ Acute pancreatitis is one of the most common presentations of acute abdomen to hospitals, with a wide range of clinical presentations and outcomes ranging from moderate to severe multi-organ dysfunction with life-threatening consequences. The management of acute pancreatitis is complicated because of the limited understanding of the pathogenesis and multi-causality of

the disease, uncertainties in outcome prediction, and few effective treatment modalities.²

The revised Atlanta classification requires that two or more of the following criteria be met for the diagnosis of acute pancreatitis: (a) abdominal pain suggestive of pancreatitis, (b) serum amylase or lipase level greater than three times the upper normal value, or (c) characteristic imaging findings.² Contrast material-enhanced CT is most commonly used to fulfil the radiologic criterion, but magnetic resonance (MR) imaging is also appropriate.³ Although many patients will meet the criteria for acute pancreatitis based on symptoms and laboratory results alone and may not require imaging initially, imaging may

be performed early in the disease course when the cause of the disease is unclear.

Most frequent gallstones, alcohol, trauma, idiopathic, drug-induced, metabolic problems (hyperlipidemia, hypercalcemia), post-ERCP, congenital defects such as pancreatic divisum, and the rarest scorpion sting are causes of acute pancreatitis.³ Medical supporting measures to surgical care in complex instances when necessary are among the therapeutic techniques.⁴

Geographical, cultural, and socioeconomic factors all have an impact on etiological factors. For instance, alcoholic pancreatitis and tropical pancreatitis, both of which are more common in different places.⁵ Clinical predictors (age, sex, alcoholic pancreatitis, obesity, and organ failure), laboratory predictors (hemoconcentration, CRP, serum creatinine, BUN, and so on), and radiological predictors are all used to predict the severity of Acute Pancreatitis (CT scan, MRI, MRCP). The CT severity index (Balthazar score) was used in our study to assess the severity and compare it to the result. The development of pancreatic necrosis is accompanied by an increase in local and systemic organ problems, increasing the risk of morbidity and mortality, according to experimental and clinical findings. This study evaluated the etiological factors and clinical presentation of acute pancreatitis patients retrospectively in a tertiary health care center.

METHODS

This study is a cross-sectional, retrospective hospital-based study that was conducted from Feb 2012 to Feb 2020 which was conducted on 500 patients who had acute pancreatitis in the department of general surgery and gastroenterology in a tertiary health care center. Written informed consent was obtained from all patients.

Sample size was calculated by

$$n = (z)^2/4d^2$$

$$d=4\%, n=(1.96)^2/4(0.04)^2=600$$

We have considered 500 patients in the study.

Inclusion criteria

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.

Exclusion criteria

Patients with malignancy were excluded from the study.

The study included patients of any age group with clinical, laboratory, and radiological findings (CECT abdomen) suggestive of acute pancreatitis.

Patients with chronic pancreatitis, other pancreatic diseases such as pancreatic malignancies or cysts, any previous pancreatic surgery, and patients contraindicated for contrast-enhanced CT abdomen were also excluded (renal failure, contrast allergy, pregnancy, etc.). The information gathered will be tallied and analyzed using SPSS software version 24. Age, sex, clinical presentation, etiology, CT severity in CTSI, and outcomes are among the patient details that will be formulated for this study (length of hospital stay, need for surgical intervention for local complications, organ failure, and death).

RESULTS

Out of the total of 500 patients, 75% of males had acute pancreatitis and 25% of females had acute pancreatitis. The mean age of patients was 45 years and the median age was 42 years and range of 5-95 years. 52% of the patients had epigastric pain without radiating to the back and it was the most common clinical presentation followed by 30% of the patients had epigastric pain radiating to the back followed by generalized abdominal pain (18%). Nausea and vomiting were observed in most of the cases (71%).

Table 1: Local complications.

Complications	Number of patients	Percentage (%)
Acute fluid collection	133	26.6
Pancreatic Necrosis	29	5.8
Pseudocyst	27	5.4
None	311	62.2

Table 1 shows that acute fluid collection was observed in 26.6% of patients, pancreatic necrosis was observed in 5.8%, pseudocyst was observed in 5.4% and no local complications were observed in 62.2% of patients.

Table 2: Metabolic complications.

Complications	Number of patients	Percentage (%)
Acidosis	6	1.2
Hypercalcemia	5	1
Hypo albuminemia	3	0.6
Hypocalcemia	121	24.2
None	365	73

Table 2 shows that acidosis was observed in 1.2% of patients, hypercalcemia was observed in 1% of patients, hypoalbuminemia was observed in 0.6% of patients, hypocalcemia was observed in 24.2% of patients and no metabolic complications were observed in 73% of patients.

Table 3 shows that the most common organ involved was the respiratory system, cardiac organs were involved in 1.8%, hematological organs were involved in 1.2%,

MODS was involved in 10.6%, renal organs were involved in 6.4% and respiratory organs were involved in 15% of patients.

Table 3: Organ involvement.

Organs involved	Number of patients	Percentage (%)
Cardiac	9	1.8
Hematological	6	1.2
MODS	53	10.6
Renal	32	6.4
Respiratory	75	15

Table 4: Hospital stay length.

Hospital stay length	Number of patients	Percentage (%)
Less than 7 days	278	55.6
More than 7 days	222	44.4

Table 4 shows that 44.4% of the patients exceeded more than 7 days in the hospital.

Table 5: Mortality cause.

Mortality	Alcoholic	Idiopathic	Biliary	Dengue and others
No	187	165	69	33
Yes	19	16	11	0

Table 5 shows that out of a total of 46 patients who expired, 19 patients died due to alcoholic pancreatitis (41.3%). Mortality was observed in 15.9% (11 of 69 patients) patients with gall stones or biliary etiology.

Table 6: CT severity index.

Severity	Number of patients	Percentage (%)
Mild	354	70.8
Moderate	87	17.4
Severe	59	11.8

Table 6 shows that the severity of the disease was mild in 70.8%, moderate in 17.4%, and severe in 11.8% of patients.

A chi-square test and Fisher's exact test were used to see if there was any link between the etiology and outcomes including metabolic, local, or organ problems, length of hospital stay, and death. None of these outcomes ($p > 0.05$) was shown to be significantly related to the etiology.

DISCUSSION

The most prevalent gastrointestinal disease needing immediate hospitalization is acute pancreatitis. In the present study, the male to female ratio was 3:1, Similar

results were observed in Ramu et al the male to female ratio was 2.7:1 and Lee et al study, the male to female ratio was 4:1.^{6,7} Although the cause of acute pancreatitis varies, in most nations, alcohol intake and gall stones are the most common causes. In the present study, Alcohol-induced pancreatitis was the most common (41.2%) among the 500 cases, followed by idiopathic pancreatitis (36.2%). Similar results were observed in Ramu et al study.⁷ Alcohol-induced pancreatitis was the most common (42.431%) among the 436 cases, followed by idiopathic pancreatitis (36.926%). These findings are in line with those of Vengadakrishnan et al who found that alcohol-induced pancreatitis was more common at SRM medical college in Chennai (51%).⁸ In a study of 148 patients, Casas et al discovered that gallstones were the cause of acute pancreatitis in 57% of cases and alcohol use in 21% of cases, which differs from the present study results. Similar results were observed in Barreto et al study.^{9,10} This can be explained by the fact that the Indian population consumes more alcohol.

The most common sign of acute pancreatitis is abdominal pain. The triad of epigastric pain, nausea, and vomiting was reported in 75% of patients in a study conducted by Raghuvanshi et al at People's college of medical sciences and research centre in Bhopal.¹¹ In the present study, the most prevalent clinical presentation was epigastric pain without radiating to the back, which accounted for 52% of the patients, followed by epigastric pain radiating to the back, which accounted for 30% of the patients, and nonspecific abdominal pain, which accounted for 30% of the patients (18%). In the majority of patients, nausea and vomiting were noted (71%). Similar results were observed in Reid et al studies, abdominal pain was evident in 96.7% of the individuals studied by Reid et al.¹² In 70.183% of cases, nausea and vomiting were present. The acute fluid collection was identified in 26.6% of cases in the present study, which is consistent with the findings of Raghuvanshi et al in a study in Bhopal, where it was found in 34% of patients, and Bandy et al in a study in Jammu, where it was found in 36%.^{13,14} Similar results were observed in Ramu et al in 33.715% of cases, there was an acute fluid collection.⁶ In the present study, the most prevalent systemic consequence was respiratory system involvement (15%). Similar results were observed in Ramu et al study, the most prevalent systemic consequence was respiratory system involvement (16.5%).⁶ This was in line with the findings of Reid et al and Raghuvanshi et al studies.^{11,12} In the present study, the severity of the disease was mild in 70.8% of cases and severe in 11.8%. In Ramu et al study, the severity of the disease was mild in 82.1% of cases and severe in 4.4%.⁶ In research conducted by Ahlawat et al¹⁴ in North India, where 82 percent of cases were classed as mild. Similar results were observed in Nesvaderani et al study.¹⁵ In Nesvaderani et al study, a total of 932 patients with acute pancreatitis were seen, with a median age of 50 years (range 16 to 95) with 470 (50.4%) of them being female.¹⁵ Gallstones were found in nearly half of the patients (40%) with 25.6% idiopathic, 22% alcohol-induced, and 3.9%

post-ERCP. The 69 (7.4%) of patients were admitted to the ICU/HDU, with a median stay of 6 days in the ICU (range 1 to 6). A total of 85 patients (11.1%) had severe pancreatitis (score 3). The study's mortality rate was 1%.

Limitations

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. A prospective clinical study is required to strengthen the present study findings.

CONCLUSION

Despite the small number of patients studied in this single-center study, this work represents the first known regional description of the genesis, clinical profile, and outcome of acute pancreatitis to our knowledge. This may symbolize the state of developing countries in general due to institutional and population similarities. This will aid in the development of a hospital policy that will benefit our patients. This necessitates more research to develop appropriate hospital policies for the treatment of alcoholic pancreatitis and MODS.

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