

A study on epidemiological and clinical profile of Acute Pancreatitis in a Tertiary Care Center in Eastern Nepal

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Abstract

Background: Acute pancreatitis is the inflammation of pancreatic parenchyma. It can present as mild to severe disease with diverse local and systemic complications. Alcohol and biliary are the most common etiologies of acute pancreatitis. This study aimed to study the epidemiological and clinical profile of acute pancreatitis including etiology, complications and severity of acute pancreatitis

Methods: The study was a cross sectional study, conducted from May 2021 to April 2024 in the Department of Gastroenterology and Hepatology. Data regarding clinical and epidemiological profiles of patients of acute pancreatitis were entered in Ms Excel and analyzed by SPSS 20.

Results: The mean age of patients was 45.06 years, age ranging from 15- 84 years with male 94(71.75%) and female 37(28.24%) (M:F=2.54:1). Alcohol 65(49.61%) followed by biliary 22(16.79%) was the common etiology of acute pancreatitis. The most common complication of acute pancreatitis was ascites 34(25.95%) followed by pleural effusion 28(21.37%) and acute fluid collection 24(18.32%). Majority 86(65.64%) was mild and 36(27.48%) had moderate severe and 9(6.87%) had acute severe pancreatitis. Most of the patients had raised CRP levels. 92(70.22%) of patients had CRP between 6-150 mg/dl, 23(17.55%) had CRP > 150 mg/dl. While 16(12.21%) of the patients had normal CRP < 6 mg/dl.

Conclusions: Alcohol abuse and gallstones were the most common etiologies of acute Pancreatitis. It was common in males and in middle age groups. Most of the patients presented with mild severity and common sequelae included ascites, pleural effusion and acute fluid collection.

Introduction

Acute pancreatitis (AP) is a common presentation with reported annual incidence varies from 13 to 45 per 100,000 people.¹ The clinical course of AP is highly variable, ranging from mild, self-limiting symptoms to multiple organ dysfunction and/or death.² Alcohol abuse and Gallstones have been reported as common cause of acute pancreatitis. Other less common causes include pancreatic divisum, intra duct papillary mucinous tumor, endoscopic retrograde cholangiopancreatography, hyperlipidemia, drug induced pancreatitis, hypercalcemia, and idiopathic causes.³

AP can be divided into mild acute pancreatitis (MAP), moderately severe acute pancreatitis (MSAP), and severe acute pancreatitis (SAP) according to the revised Atlanta classification system. Acute pancreatitis in the absence of any local or systemic complications is labeled as MAP. MSAP is a group of patients with AP who either develop any of the local complications like acute fluid collections, acute necrotic collections, pseudo cyst formation, and/ or walled off

necrosis; or who suffer from transient organ failure for less than 48 hours. Patient with persistent organ failure for more than 48 hours are grouped as SAP.¹

Early prediction of severity is necessary so that optimal actions can be taken to prevent morbidity. Scoring systems like Ranson's score, CT severity index and APACHE II have been developed for predicting severity. Serum amylase and lipase have poor prognostic value. Acute phase reactants like C reactive protein (CRP) and procalcitonin have also been evaluated for this purpose.⁴ CRP levels

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of >150 mg/L within first 48 hours can predict severity with a high sensitivity.⁵ The interval change of CRP >90 mg/dL and an absolute concentration of >190 mg/dL, at 48 hour from admission has shown to stratify the severity in acute pancreatitis.² The management strategy is based upon the knowledge of clinical and epidemiological profiles of the patients. This data has been scarce in this region. This study was conducted to fulfill the gap in knowledge of cases of acute pancreatitis at tertiary care center in Eastern Nepal

Methods

This was a cross sectional study conducted in the Department of Gastroenterology and Hepatology in B.P. Koirala Institute of Health Sciences, Dharan, Nepal from May 2021 to April 2024 to find out the clinical profiles of patients of acute pancreatitis. Ethical approval was obtained from the Institutional Review Committee (IRC) Ref. No. 183/081/82. All the cases of acute pancreatitis admitted in the department during the specified duration were included in study. The diagnosis of acute pancreatitis was based on clinical presentation, elevation of serum amylase/lipase and imaging studies-ultrasound/ CT scan reports suggesting the diagnosis. The patient was classified in to mild, moderate, and severe acute pancreatitis based on the Revised Atlanta classification. Patients with incomplete records, chronic pancreatitis and malignancy were excluded from the study. The patient's details including age, sex, symptoms and signs were noted. Blood investigations and imaging reports were reviewed thoroughly. The most likely etiological factors were identified by analysis of history, examination findings and relevant investigations. Specific investigation like C Reactive protein (CRP) was noted.

Results

A total of 131 patients of acute pancreatitis were included in the study. There was male predominance 94(71.75%) with M:F ratio of 2.54:1. The mean age was 45.06 years with a range from 15- 84 years. Almost two third of the patients belong to the 21 to 50 age group. Table 1.

Table 1. Age and gender distribution:

Gender	Sex	Frequency (n)	Percentage (%)
	Male	94	71.75
	Female	37	28.24
Age group	< 20	4	3.05
	21 - 30	15	11.45
	31 - 40	38	29.00
	41 - 50	37	28.24
	51 - 60	15	11.45
	61 - 70	14	10.68
	> 71	8	6.10

The most common cause of acute pancreatitis was alcohol 65(49.61%) followed by biliary 22(16.79%). However around one fourth of cases the cause remains unknown. The most common complication

of acute pancreatitis was ascites 34(25.95%) followed by pleural effusion 28(21.37%) and acute fluid collection 24(18.32%) around the pancreas. The cases were classified according to the Revised Atlanta Classification. Most of the cases were mild acute pancreatitis 86(65.64%) followed by moderate acute pancreatitis 36(27.48%) and acute severe pancreatitis 9(6.87%). CRP was raised in most of the cases. Level more and equal to six was positive. More than two third of the cases 92(70.22%) had CRP levels between 6-150 mg/dl. The various clinical parameters are given in Table 2.

Table 2. Clinical profile of Acute Pancreatitis

Clinical parameters		Frequency (n)	Percentage (%)
Etiology	Alcohol	65	49.61
	Biliary/ stone	22	16.79
	Ampullary stricture/ mass	3	2.29
	Post ERCP	4	3.05
	Hypertriglyceride	5	3.81
	Un known	32	24.42
Complications	Ascites	34	25.95
	Pleural effusion	28	21.37
	Acute fluid collection	24	18.32
	Pancreatic necrosis	6	4.58
	Venous thrombosis	1	0.76
Revised Atlanta Classification	Pseudo cyst	5	3.81
	Mild Acute	86	65.64
	Moderate severe	36	27.48
	Acute Severe	9	6.87
CRP levels in mg/dl	CRP < 6	16	12.21
	CRP 6 - 150	92	70.22
	CRP > 150	23	17.55

At least one complication was noted in 64(48.85%) of the cases while in the remaining had no complication. The relationship between the complications and CRP was statistically significant. The chi-square statistic was 7.1429. The p-value was 0.007526. The result was

significant at $p < .05$. However the relationship between the CRP and severity of pancreatitis was not significant. The chi-square statistic was 1.7989. The p-value was 0.179848. The result was not significant at $p < .05$. Table 3

Table 3. Association of CRP with complications and Severity of disease

		CRP 0-5	CRP ≥6	P - value
Complications	Complication/s present	3	61	.007526
	No complication	13	51	
Revised Atlanta Classification	Mild Acute Pancreatitis	13	74	0.179848
	Moderate- severe Acute Pancreatitis	3	41	

Discussion

A total of 131 patients were enrolled in this study. There was male predominance 94(71.75%) with M:F ratio of 2.54:1. The mean age was 45.06 with a range from 15- 84 years. Almost two third of the patients belong to 21 to 50 age. This finding was similar to the study of Bhattarai S et al. where the mean age was 44 ± 10.87 years with a range between 21-68 years and majority fall in the age group 41 -60 years. Male predominance was also observed with sex ratio of M:F=2.3:1.⁶ Another study from Pakistan by Irumi F et al. also noted that mean age was 47.21 ± 5.68 years with range from 21 to 70 years and with 59% male participants.⁴ Similarly another study from India by Das, S et al. Noted similar findings than that of ours. There were patients in the age group 10 to 70 years with mean age of 36.5 years and male predominance of 96%.⁷ This findings can be explained by the fact that alcohol is the most common cause of acute pancreatitis in this region. Alcohol consumption is significantly higher in male than females. The working population is middle and early age groups who are more involved in both alcohol consumption and acute pancreatitis.

The most common cause of acute pancreatitis was alcohol 65(49.61%) followed by biliary 22(16.79) in this study. This finding was concordant with the study from Bhattarai S et al. where alcohol (53.2%) followed by biliary (37.1%) was the commonest etiology of pancreatitis.⁶ Similarly another study from India Negi et al. also confirmed that alcohol (59.34%) followed by gallstone (32.52%) was the most common cause of acute pancreatitis.⁸ Another study by Das, S et al. also revealed that alcohol was responsible for pancreatitis in (90%) of the cases and only (4%) were due to gallstones.⁷ This finding was much higher than that of ours. Similar was the findings of study by Gautam AK et al. It was found that the most common

etiology of acute pancreatitis was alcohol 35(46.7%), followed by gall stone in 18(24%), hypertriglyceridemia in 8(10.7%), and unknown etiology in 14(18.6 %) of cases.⁹

However, few studies stated that Gallstone disease was the most common etiology for acute pancreatitis. Raghuwanshi et al.¹⁰ found that 40% cases had gallstone disease responsible for acute pancreatitis followed by alcohol in 38%. Similar was the finding in study by Reid et al.¹¹ where biliary tract disease (71.4%) was the most common etiology of pancreatitis. Gallstone was the most common etiology (87%) followed by alcohol (6%), choledochal cyst (4%) and viral infection (3%) in the study by Deherkar JA et al.¹² These findings was discordant than that of the findings from our study. Etiology of pancreatitis depends upon the country of origin and the local factors like alcohol consumption practice. Countries like ours where alcohol consumption is rooted in the society. Certain caste and cultural values do not recognize alcohol consumption as a social mischief. Alcohol consumption should be in limited amounts such that it would decrease the morbidity of alcohol related disease and acute pancreatitis. Local advocacy and community participation is required for decreasing alcohol consumption. Government should ban rampant production of local alcohol containing beverages and fixed centers should be allotted where one can buy such drinks.

The most common complication of acute pancreatitis was ascites 34(25.95%) followed by pleural effusion 28(21.37%) and acute fluid collection 24(18.32%) in this study. Similar was the findings of Parmar D et al. Where the most common complication was ascites (80%) followed by pancreatic necrosis in 30% patients.¹³ The findings were different in the study by Gautam AK et al. Where local complications like peri-pancreatic fluid collection/pseudocyst were present in (20%) cases and necrotizing pancreatitis in (14.7%).⁹ Another study from India by Deherkar JA et al. found that the most common complications was acute pancreatic fluid collection or acute necrotic collection (12%) followed by ascites (7%), pancreatic pseudocyst (3%) and pancreatic necrosis (1%).¹⁴ Similarly, Ramu R et al. Also found the results which were different from that of ours. The acute peripancreatic fluid collection was in (29.1%), followed by pancreatic pseudocyst (5.7%), pancreatic necrosis (6%).¹⁵

Most of the cases were classified as mild acute pancreatitis (65.65%) followed by moderate severe acute pancreatitis (27.48%) and acute severe pancreatitis (6.87%) in this study. Severity was similar in the study by Bhattarai S et al. where majority (72.6%) presented with mild severity, 9.7% were of moderately severe and acute severe pancreatitis were in 17.7% of the cases.⁶ The findings by Reid et al. also coincide with ours where 61.1% were mild, 26.7% were moderately severe and acute severe were in 12.2%.¹¹ Santorini Consensus Conference Report also reported that acute pancreatitis had mild disease in 254 (75.4%) cases followed by moderately severe in 38 (11.3%) and Severe in 45 (13.4%). These findings were also replicated in our study.¹⁶

In this study 12.21% of the patients had normal CRP that is less than 6 mg/dL, 70.22% had CRP between 6-150 mg/dL and 17.55% had CRP more than 150 mg/dL. Deherkar JA et al noted in their study that 24% patients had normal CRP level (< 6 mg/dL) while 76% patients had elevated CRP levels (6-150 mg/dL).¹⁴ This was similar to our finding. Parmar et al observed that 96% patients had elevated CRP level, out of which 44% had C-reactive protein level between 6 mg/dL to 150 mg/dL and 52% patients had CRP level > 150 mg/dL, and was found to be significant ($p < 0.05$) to predict the severity of acute pancreatitis.¹⁷ However in our study CRP was not found to

be significantly associated with severity (P value : 0.17). Dervenis C (2000) stated that accepted value of CRP for prediction of severity as international consensus was an absolute CRP >150 mg/dL within 48 h of admission.¹⁶ Stirling AD et al. suggested that a rise of >90 mg/dL from admission and an absolute concentration of >190 mg/dL, at 48 h from admission stratifies the severity of disease at the best.²

Conclusion:

Alcohol abuse and gallstone disease were the most common etiologies of acute pancreatitis. There was male predominance and middle age groups were more affected than others. Majority of the patients presented with milder severity of disease. The most common complications of acute pancreatitis were ascites, pleural effusion and acute fluid collection around the pancreas. CRP was raised in more than three fourth of the cases.

Conflict of Interest:

None

Acknowledgement:

None

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