



Research Article

## Comparison Between Clinical Course and Outcomes of Acute Biliary Versus Acute Non-Biliary Pancreatitis: A Single Centre Study

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### ABSTRACT

**Background:** Acute pancreatitis is an acute inflammatory process of the pancreas with diverse severity and prognosis. Etiological determination is crucial for optimizing therapy and predicting complications.

**Objectives:** To contrast the clinical profile, complications, treatments, and outcomes of biliary and non-biliary acute pancreatitis.

**Methods:** This prospective observational study enrolled patients with acute pancreatitis. Demographic information, aetiology, intensive care and mechanical ventilation requirements, local and systemic complications, interventional procedures (ERCP, laparoscopic cholecystectomy, necrosectomy, drainage of fluid), and mortality were noted and compared.

**Results:** The most frequent aetiology of AP was gallstones, followed by alcohol. The majority of the patients in both groups were 18–40 years old. Biliary pancreatitis was characterized by female predominance and non-biliary pancreatitis predominantly occurred in males. More patients with biliary pancreatitis needed ICU treatment and mechanical ventilation, although the difference was not statistically significant. Systemic and local complications and the requirement for invasive treatment were more in the non-biliary group to a minor degree. Mortality was slightly higher in the biliary group but not statistically different.

**Conclusion:** Biliary and non-biliary acute pancreatitis have different demographic and clinical profiles. While complication rates and intervention requirements differ marginally, both conditions show similar outcomes in general. Early etiological diagnosis continues to be critical in directing proper management and maximizing patient care.

**Keywords:** *Acute Pancreatitis, Biliary Pancreatitis, Non-Biliary Pancreatitis, Gallstones, Alcohol-induced Pancreatitis, Complications, Intensive Care.*

### INTRODUCTION

Among gastrointestinal illnesses, acute pancreatitis is one of the most frequent reasons for hospitalization. It is an acute onset of inflammation of the pancreas, with its severity ranging from mild disease resolving with conservative management, with almost zero mortality, to severe form resulting in high morbidity and mortality [1]. The worldwide reported annual incidence ranges from 4.9 to 35 per one lakh population. Alcohol and gallstones are the most frequent etiological factors for acute pancreatitis, while there are other causes as well. Other causes include hypertriglyceridemia, drug-induced (steroids, azathioprine, etc.), autoimmune, post-endoscopic retrograde cholangiopancreatography (ERCP), viral infections (Coxsackie, cytomegalovirus, etc.), trauma, congenital anomalies (annular pancreas), toxins, etc [2].

The main symptom with which patients present is pain, which usually starts in epigastrium and later localizes to either the upper quadrant or becomes diffuse. Supportive therapy, including fluid resuscitation, pain control, and nutritional assistance, is the primary focus of initial management for patients with acute pancreatitis [3]. Local or systemic problems that arise during the illness are then addressed. To check for local adverse effects, individuals with moderately severe or severe acute pancreatitis, sepsis symptoms, or clinical deterioration should have a contrast-enhanced computed tomography (CECT) scan 72 hours after initial presentation [4].

Various scoring systems allow clinicians to determine a patient's risk of developing severity. Several distinct pieces of biochemical and clinical data gathered at multiple points after admission are used in these grading systems. The underlying cause of acute pancreatitis is not taken into account in risk stratification by any of these widely used scoring systems. Clinicians would benefit from the capacity to stratify patients according to the cause of acute pancreatitis, which could change how patients are managed [5,6].

This study aimed to analyze the clinical progression and outcomes of individuals with acute biliary pancreatitis and those with acute non-biliary pancreatitis. The objectives were to evaluate and compare the distribution of ages and genders, the duration of hospital and intensive care unit stays, and the need for mechanical ventilation. To ascertain current disparities in disease occurrence and consequences, the study also assessed the types of interventions used, the frequency of systemic and local sequelae, and the overall mortality rate in both groups.

## MATERIALS AND METHODS

This was a prospective comparative study carried out in the Department of Surgery, St. Stephen's Hospital, New Delhi, from May 2022 to November 2023. The sample size was determined for comparison of morbidity and mortality outcomes between patients with acute biliary and acute non-biliary pancreatitis. A clinically significant difference of 10% between the two groups in adverse outcomes (both morbidity and mortality) was used based on estimates from prior research. A sample size of 199 patients per group was calculated to offer 80% power to detect a statistically significant difference at a 5% level of significance ( $\alpha=0.05$ ), assuming a 10% baseline rate of poor outcomes in the non-biliary group.

The sample size was calculated using the formula,

$$n = \frac{[Z_{1-\alpha/2} \cdot \sqrt{2P(1-P)} + Z_{1-\beta} \cdot \sqrt{\{P_1(1-P_1) + P_2(1-P_2)\}}]^2}{(P_1 - P_2)^2}$$

$$= \frac{[1.96 \cdot 0.505 + 0.842 \cdot 0.500]^2}{(0.10)^2}$$

$$= 1.9902/0.01$$

$$= 199.02$$

Prevalence of biliary patients in AP = 50%,  $Z_{\alpha/2}$  is the critical value of the Normal distribution at  $\alpha/2$  (for example,  $\alpha$  is 0.05 and the critical value is 1.96 at a 95% confidence level), while  $Z_{\beta}$  is the critical value of the Normal distribution at  $\beta$  (for example,  $\beta$  is 0.2, and the critical value is 0.842 at a power of 80%). The two groups' expected sample proportions are denoted by  $p_1$  and  $p_2$ .

Patients chosen for the study were admitted with the diagnosis of acute pancreatitis in the Department of Surgery at St. Stephen's Hospital. The criteria for inclusion consisted of patients aged between 18 and 80 years of either sex, irrespective of whether they had any comorbidities or not. Patients were excluded if they were under 18 or over 80 years of age, had a history of recurrent pancreatitis, were pregnant, or were left against medical advice during the study.

After diagnosis and hospitalization, patients were included or excluded depending on the study criteria. Selected patients were split into two cohorts—patients with biliary pancreatitis and non-biliary pancreatitis. Both clinical and biochemical evaluations were carried out on every patient following a pre-established study protocol. The data was obtained systematically, reviewed, and examined to arrive at conclusions.

Demographic details, pertinent history, and results of physical exams were part of the data that was collected and analyzed. Intravenous and blood tests, including laboratory tests like arterial blood gas estimation and random blood sugar check-ups, were carried out. Imaging, such as ultrasound and CECT abdomen, was performed as and when indicated. The local complications found were acute peripancreatic fluid collection, pancreatic pseudocyst, acute necrotic collection, either sterile or infected, walled-off necrosis, gastric outlet obstruction, thrombosis of splenic and portal veins, pancreatic-peritoneal fistula, and colonic necrosis. Systemic complications assessed were cardiovascular, renal, and respiratory dysfunctions, multi-organ failure, and persistent organ failure. Other complications like pleural effusion, diabetes mellitus, and cholangitis were observed as well.

SPSS version 21.0 was used for statistical analysis. For non-normally distributed data, continuous variables were presented as median with interquartile range or mean  $\pm$  standard deviation (SD). Frequency and percentage were used to report categorical variables. The Mann-Whitney U test was used to compare non-normally distributed continuous variables, while the student's t-test was used to compare group-wise normally distributed continuous variables pairwise. When necessary, Fisher's exact test or the Chi-square test was used to evaluate categorical variables. For every test, a p-value of less than 0.05 indicated statistical significance.

## RESULTS

Table 1 shows the distribution of age among study participants. Non-biliary causes were common in the younger age group of 18-40 years (p- value 0.02), while there was not much difference in the middle group of 41-60 years (p-value 0.44). The proportion of individuals having biliary pancreatitis was significantly higher among those who were more than 60 years old as compared to non-biliary pancreatitis (p-value <0.01). The mean age and median age of those having acute biliary pancreatitis were  $48.06 \pm 15.23$  and 47.00 (34.75-62.00), respectively, and the mean age and median age of those having acute non-biliary pancreatitis were  $38.94 \pm 12.79$  and 35.00 (29.00-46.25) respectively.

**Table 1: Age distribution of patients of acute pancreatitis based on aetiology**

Age group	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
18-40 years	39 (38.2%)	62 (63.3%)	0.02
41-60 years	33 (32.4%)	27 (27.6%)	0.44
61-80 years	30 (29.4%)	9 (9.2%)	<0.01

Table 2 shows gender distribution among patients with acute pancreatitis. Acute biliary pancreatitis was significantly higher among females as compared to non-biliary pancreatitis. (p-value <0.01), while acute non-biliary pancreatitis was significantly higher in males as compared to biliary pancreatitis (p-value <0.01).

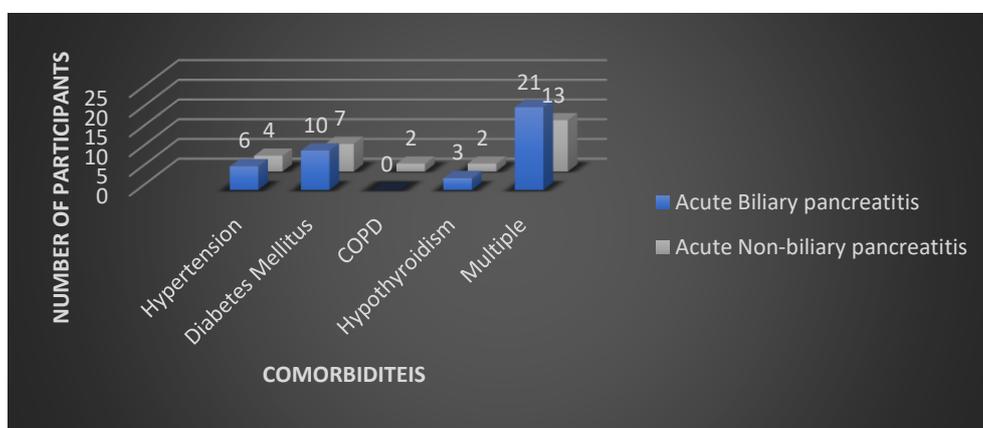
**Table 2: Gender distribution among patients with acute biliary pancreatitis and acute non-biliary pancreatitis**

Sex	Aetiology		p-value
	Biliary n (%)	Non-biliary n (%)	
Male	48 (47.1%)	79 (80.6%)	<0.01
Female	54 (52.9%)	19 (19.4%)	<0.01
<b>Total</b>	102	98	

Table 3, Figure 1 shows the presence of comorbidities among study participants. In acute biliary pancreatitis, multiple comorbidities were present in 21 (20.6%), diabetes mellitus in 10 (9.8%), hypertension in 6 (5.9%), and hypothyroidism in 3 (2.9%) patients. In acute non-biliary pancreatitis, multiple comorbidities were present in 13 (13.3%), diabetes mellitus in 7 (7.1%), hypertension in 4 (4.1%), and both COPD and hypothyroidism were present in 2 (2.0%) patients each. It was found that comorbidities were more prevalent in patients with acute biliary pancreatitis.

**Table 3: Presence of comorbidities among study participants**

Type of comorbidity	Aetiology		
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
Hypertension	6 (5.9%)	4 (4.1%)	
Diabetes Mellitus (DM)	10 (9.8%)	7 (7.1%)	
COPD	0 (0.0%)	2 (2.0%)	
Hypothyroidism	3 (2.9%)	2 (2.0%)	
Multiple	21 (20.6%)	13 (13.3%)	
Total	40 (39.2%)	28 (28.6%)	



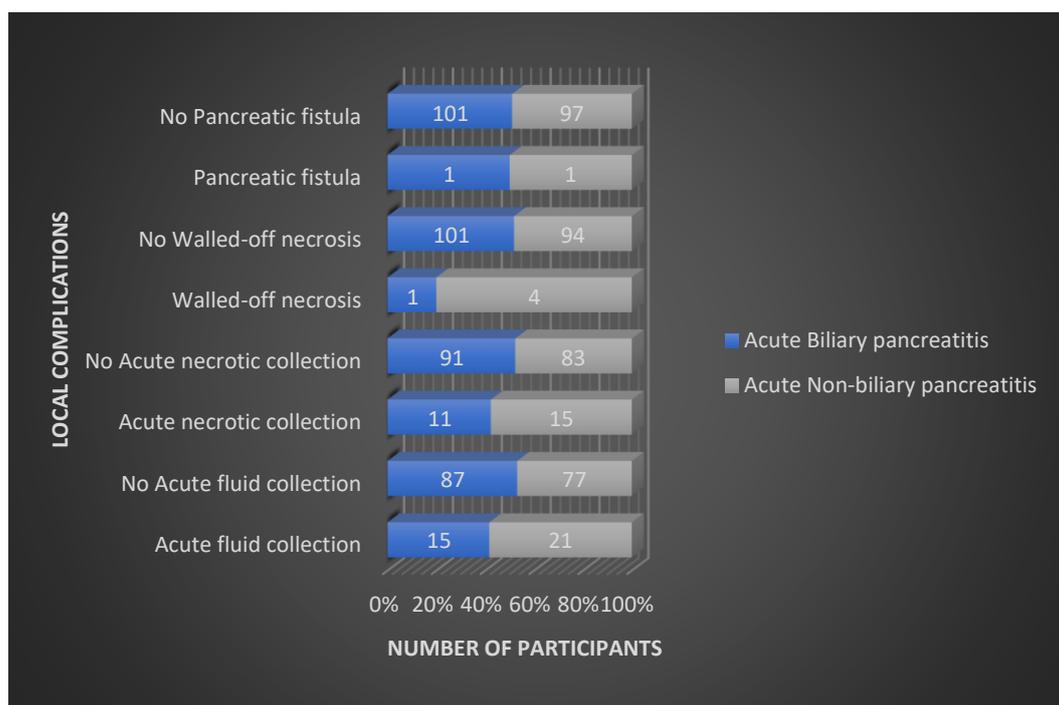
**Figure 1: Presence of comorbidities among study participants**

Among research participants with acute pancreatitis, the distribution and occurrence of local complications are displayed in Table 4 and Figure 2. Compared to acute biliary pancreatitis, acute non-biliary pancreatitis had a higher rate of acute fluid collection. Aetiology and acute fluid collection did not differ statistically significantly among study participants (p-value 0.22). Compared to acute biliary pancreatitis, acute non-biliary pancreatitis had a higher rate of acute necrotic collection. Aetiology and acute necrotic collection did not differ statistically significantly among research subjects (p-value 0.34). Compared to acute biliary pancreatitis, walled-off necrosis was more common in acute non-biliary pancreatitis. However, among research participants, there was no statistically significant difference between walled-off necrosis and aetiology (p-value 0.20). Both acute biliary pancreatitis and acute non-biliary pancreatitis had similar rates of pancreatic fistula. The study participants' aetiology and pancreatic fistula did not differ statistically significantly (p-value 1.00).

**Table 4: Presence and distribution of local complications among study participants**

Local Complications	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
<b>Acute fluid collection</b>			
Yes	15 (14.7%)	21 (21.4%)	0.22
No	87 (85.3%)	77 (78.6%)	
<b>Acute necrotic collection</b>			
Yes	11 (10.8%)	15 (15.3%)	0.34
No	91 (89.2%)	83 (84.7%)	
<b>WON (Walled-off necrosis)</b>			
Yes	1 (1.0%)	4 (4.1%)	0.20*
No	101 (99.0%)	94 (95.9%)	
<b>Pancreatic fistula</b>			
Yes	1 (1.0%)	1 (1.0%)	1.00*
No	101 (99.0%)	97 (99.0%)	
<b>Total</b>	102	98	

\*Fisher's exact test



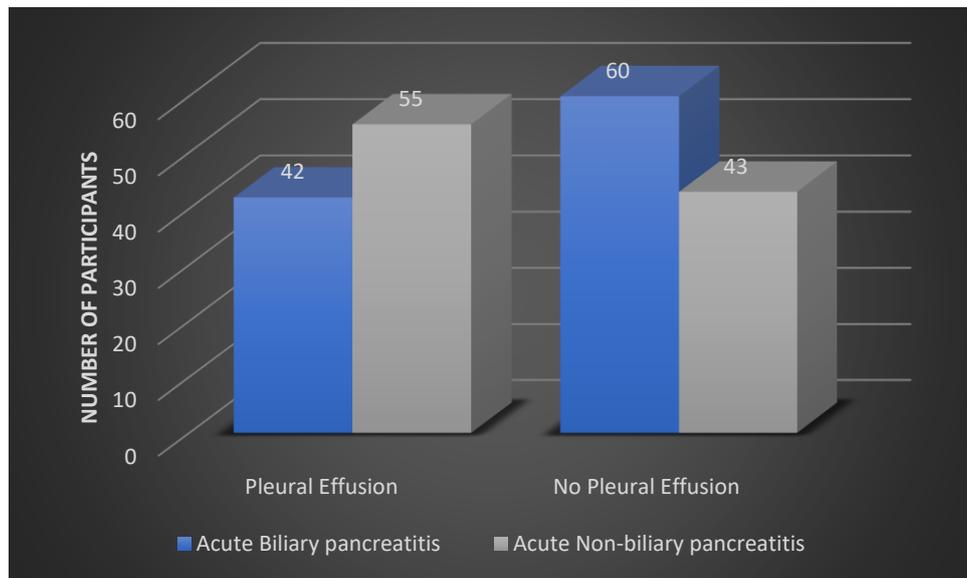
**Figure 2: Presence and distribution of local complications among study participants**

Table 5 Figure 3 shows the distribution of pleural effusion among study participants. Pleural effusion occurred in 55 (56.1%) individuals with acute non-biliary pancreatitis as compared to 42 (41.2%) individuals with acute biliary pancreatitis. The incidence of pleural effusion was higher in non-biliary pancreatitis, and this was statistically significant (p-value 0.03).

**Table 5: Distribution of pleural effusion among study participants**

Aetiology	

Pleural effusion	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	p-value
Yes	42 (41.2%)	55 (56.1%)	0.03
No	60 (58.8%)	43 (43.9%)	
Total	102	98	



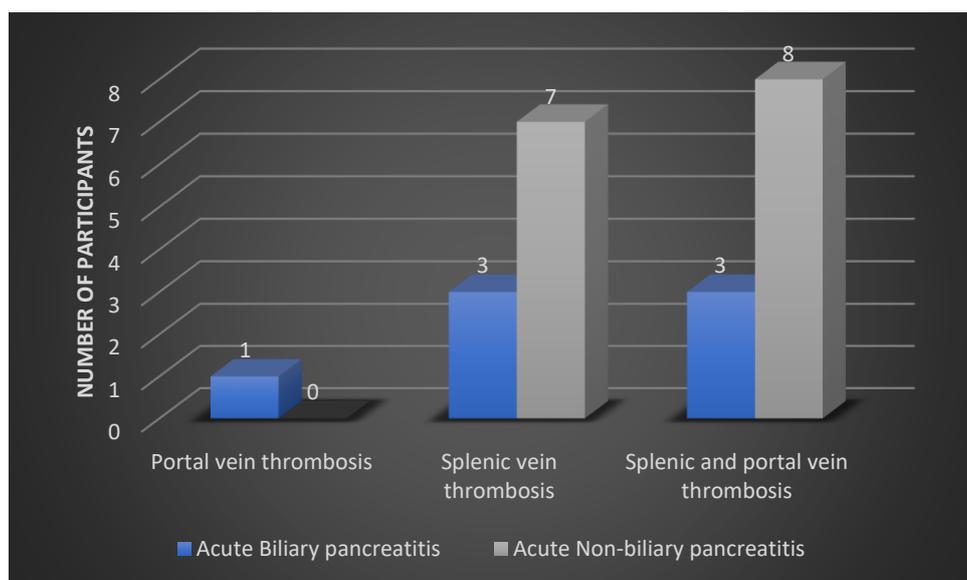
**Figure 3: Distribution of pleural effusion among study participants**

The distribution of additional local complications among research participants is displayed in Table 6 Figure 4. The study participants' aetiology and other local complications did not differ statistically significantly (p-value >0.05).

**Table 6: Association of aetiology and other local complications among study participants**

Others	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
Portal vein thrombosis	1 (1.0%)	0 (0.0%)	1.00*
Splenic vein thrombosis	3 (2.9%)	7 (7.1%)	0.20*
Splenic and portal vein thrombosis	3 (2.9%)	8 (8.2%)	0.19

\*Fisher's exact test

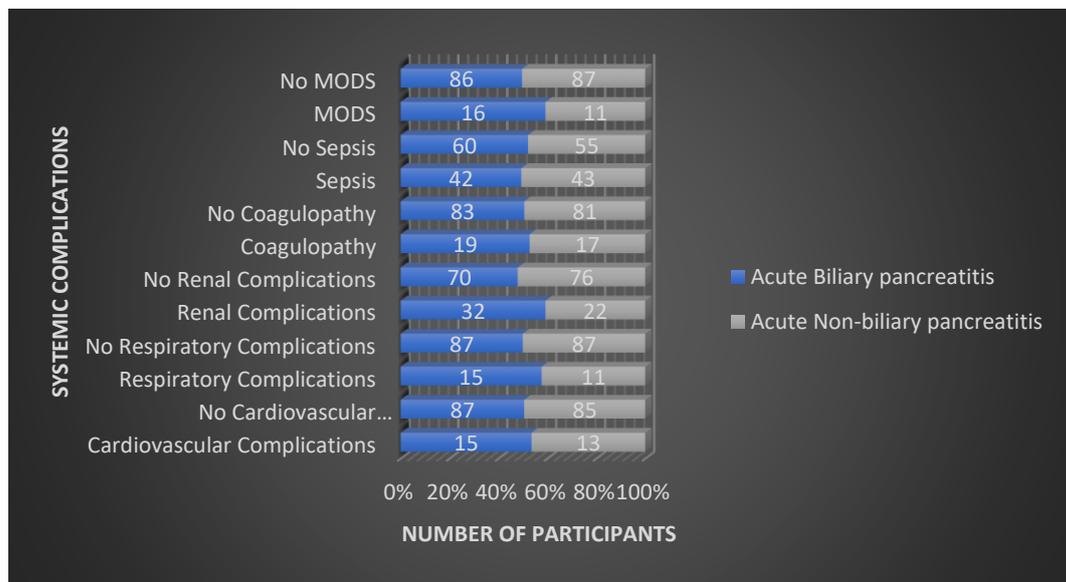


**Figure 4: Distribution of other local complications among study participants**

Table 7 Figure 4 shows the distribution of systemic complications among study participants. In acute biliary pancreatitis, cardiovascular complications were present in 15 patients (14.8%) as compared to acute non-biliary pancreatitis, where cardiovascular complications were present in 13 patients (13.2%). The study participants' cardiovascular issues and aetiology did not differ statistically significantly (p-value 0.77). Respiratory issues were observed in 11 (11.2%) individuals with acute non-biliary pancreatitis and in 15 (14.7%) patients with acute biliary pancreatitis. The study participants' respiratory issues and aetiology did not differ statistically significantly (p-value 0.46). Although biliary pancreatitis was associated with higher renal issues, there was no statistically significant difference between the research participants' aetiology and renal complications (p-value 0.15). Sepsis and coagulopathy were similar in both groups. The research participants' aetiology and coagulopathy did not differ statistically significantly (p-values of 0.81 and 0.70, respectively). Although those with acute biliary pancreatitis had a greater prevalence of multiple organ dysfunction syndrome (MODS), there was no statistically significant difference between the research participants' aetiology and MODS (p-value 0.36).

**Table 7: Association of aetiology and systemic complications among study participants**

Systemic complications	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
<b>Cardiovascular</b>			
Yes	15 (14.7%)	13 (13.3%)	0.77
No	87 (85.3%)	85 (86.7%)	
<b>Respiratory</b>			
Yes	15 (14.7%)	11 (11.2%)	0.46
No	87 (85.3%)	87 (88.8%)	
<b>Renal</b>			
Yes	32 (31.4%)	22 (22.4%)	0.15
No	70 (68.6%)	76 (77.6%)	
<b>Coagulopathy</b>			
Yes	19 (18.6%)	17 (17.3%)	0.81
No	83 (81.4%)	81 (82.7%)	
<b>Sepsis</b>			
Yes	42 (41.2%)	43 (43.9%)	0.70
No	60 (58.8%)	55 (56.1%)	
<b>MODS</b>			
Yes	16 (15.7%)	11 (11.2%)	0.36
No	86 (84.3%)	87 (88.8%)	
<b>Total</b>	102	98	



**Figure 4: Distribution of systemic complications among study participants**

The correlation between research participants' aetiology, ICU stay, and mechanical ventilation is displayed in Table 8. ICU stays were more common in patients with acute biliary pancreatitis than in those with acute non-biliary pancreatitis. However, among study participants, there was no statistically significant difference between aetiology and ICU stay (p-

value 0.21). There was no statistically significant difference between the study participants' aetiology and mechanical ventilation (p-value 0.88), and the persons who needed mechanical ventilation were similar in both groups.

**Table 8: Association of aetiology with ICU stay and Mechanical ventilation among study participants**

	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
<b>ICU stay</b>			
Yes	25 (24.5%)	17 (17.3%)	0.21
No	77 (75.5%)	81 (82.7%)	
<b>Mechanical ventilation</b>			
Yes	10 (9.8%)	9 (9.2%)	0.88
No	92 (90.2%)	89 (90.8%)	
Total	102	98	

Table 9 shows the association of aetiology and interventions done among study participants. Interventions like ERCP, laparoscopic cholecystectomy, necrosectomy, and pigtail drainage- peripancreatic and pleural tapping were done for treatment of the aetiology. In both groups, interventions were comparable, and there was no statistically significant difference between aetiology and interventions done among study participants (p-value 0.88).

**Table 9: Association of aetiology and interventions done among study participants**

Intervention	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
Yes	21 (20.6%)	21 (21.4%)	0.88
No	81 (79.4%)	77 (78.6%)	
Total	102	98	

Table 10 shows the association of aetiology and type of intervention among study participants. In acute biliary pancreatitis, ERCP, laparoscopic cholecystectomy, pigtail drainage- peripancreatic and pleural tapping were done in 1 (1%), 9 (8.9%), 8 (7.8%) and 3 (2.9%) respectively. In acute non-biliary pancreatitis, necrosectomy, pigtail drainage-peripancreatic and pleural tapping were done in 3 (3.1%), 15 (15.3%) and 3 (3.1%), respectively.

**Table 10: Association of aetiology and type of intervention done among study participants**

Type of intervention	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
ERCP	1 (1.0%)	0 (0.0%)	1 (0.5%)
Laparoscopic cholecystectomy	9 (8.8%)	0 (0.0%)	9 (4.5%)
Necrosectomy	0 (0.0%)	3 (3.1%)	3 (1.5%)
Pigtail drainage - peripancreatic	8 (7.8%)	15 (15.3%)	23 (11.5%)
Pleural tap/drainage	3 (2.9%)	3 (3.1%)	6 (3%)

Table 11 shows the association of aetiology and mortality among study participants. The mortality rate was slightly higher among those with biliary aetiology, but there was no statistically significant association between aetiology and mortality among study participants (p-value 0.34).

**Table 11: Association of aetiology and mortality among study participants**

Mortality	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
Yes	10 (9.8%)	6 (6.1%)	0.34
No	92 (90.2%)	92 (93.9%)	
Total	102	98	

Table 12 shows the association of aetiology and APACHE-II score among study participants. There was no statistically significant difference between aetiology and APACHE-II scores among study participants (p-value 0.28).

**Table 12: Association of aetiology and APACHE-II score among study participants**

APACHE-II score	Aetiology		p-value
	Acute Biliary pancreatitis n (%)	Acute Non-biliary pancreatitis n (%)	
Severe ( $\geq 8$ )	18 (17.6%)	12 (12.2%)	0.28
Mild ( $< 8$ )	84 (82.4%)	86 (87.8%)	
Total	102	98	

Table 13 shows that the median hospital stay was comparable in both groups (p-value 0.28). The hospital stay was  $8.22 \pm 5.62$  days in individuals having acute biliary pancreatitis and  $9.24 \pm 7.32$  days in those having acute non-biliary pancreatitis.

**Table 13: Association of aetiology hospital stay among study participants**

	Acute Biliary Pancreatitis		Acute Non-biliary pancreatitis		p-value
	Mean $\pm$ SD	Median (IQR)	Mean $\pm$ SD	Median (IQR)	
Hospital Stay	$8.22 \pm 5.62$	6.00 (4.75-10.00)	$9.24 \pm 7.32$	7.00 (5.00-12.00)	0.28 <sup>#</sup>

<sup>#</sup>Mann-Whitney U test

Table 14 shows the mean duration of ICU stay and mechanical ventilation among study participants. The mean ICU stay in individuals having acute biliary pancreatitis was  $1.32 \pm 3.26$  days, and in those having acute non-biliary pancreatitis was  $1.57 \pm 5.82$  days. The mean duration of mechanical ventilation in individuals having acute biliary pancreatitis was  $0.60 \pm 2.43$  days, and in those having acute non-biliary pancreatitis was  $1.02 \pm 5.31$  days.

**Table 14: Association of aetiology and ICU stay and duration of mechanical ventilation among study participants**

	Acute Biliary Pancreatitis	Acute Non biliary pancreatitis
	Mean $\pm$ SD	Mean $\pm$ SD
ICU Stay	$1.32 \pm 3.26$	$1.57 \pm 5.82$
Duration of Mechanical ventilation	$0.60 \pm 2.43$	$1.02 \pm 5.31$

Table 15 shows the association between APACHE-II score and ICU stay or systemic complications among study participants. All the participants who had APACHE-II scores  $\geq 8$  (30 patients) had ICU stay or systemic complications, whereas 89 individuals who had mild scores had ICU stay or systemic complications. There was a statistically significant association between APACHE-II score and ICU stay or mechanical ventilation (p-value  $< 0.01$ ).

**Table 15: Association of APACHE-II score and ICU stay or systemic complications among study participants**

APACHE-II score	ICU stay or systemic complications		p-value
	Yes n (%)	No n (%)	
Severe ( $\geq 8$ )	30 (100.0%)	0 (0.0%)	$< 0.01$
Mild ( $< 8$ )	89 (52.4%)	81 (47.6%)	
Total	119	81	

## DISCUSSION

Acute pancreatitis is a frequent gastrointestinal emergency with an extensive range of clinical presentations, from mild, self-limiting inflammation to severe disease with local and systemic complications. Out of its several etiologies, the most common causes are alcohol- and biliary-related, and both have differences in pathophysiologic mechanism, clinical picture, and outcomes [7]. It is essential to grasp these differences between biliary and non-biliary pancreatitis as this impacts investigations, treatment planning, and prognostication. This research was conducted to define the clinical course further, patterns of complications, and outcomes of acute biliary and non-biliary pancreatitis with the objectives of enhancing risk stratification, informing management approaches, and predicting the requirement for interventions in various patient subgroups.

Among the 200 patients investigated, 102 presented with biliary pancreatitis and 98 with non-biliary aetiology, each having an incidence of 51% and 49%, respectively. Patients with biliary pancreatitis were much older than those with non-biliary pancreatitis. In gender distribution, biliary pancreatitis was more prevalent among females, whereas non-biliary pancreatitis was more prevalent among males, with a statistically significant disparity (p $< 0.01$ ). These trends support existing literature by Bhattarai et al., Cho et al., Fabisiak et al., and Garcia et al [8–11].

ICU management was needed in a more significant percentage of patients with biliary pancreatitis than in those with non-biliary pancreatitis (24.5% vs. 17.3%), without any statistical significance ( $p = 0.21$ ). Comparable patterns were seen in the research by Fabisiak et al., Samanta et al., and Garcia et al [10–12]. The length of hospital stay was a bit greater in the non-biliary group than in the biliary group, without any statistical significance. Cho et al. noticed a similar finding [9]. On the contrary, research conducted by Fabisiak et al. and Samanta et al. revealed a prolonged hospital stay in patients with biliary pancreatitis [10,12]. Mechanical ventilation was needed in 9.8% of biliary pancreatitis patients and 9.2% of non-biliary pancreatitis patients, with no statistically significant difference ( $p = 0.88$ ). The results are in agreement with those of Samanta et al [12].

Local complications in the form of acute fluid collections, necrotic collections, and walled-off necrosis were more in the non-biliary cohort (64.3%) than in the biliary cohort (50%), with a  $p$ -value of 0.04. Acute fluid collections occurred in 21.4% of the biliary and 14.7% of the non-biliary patients, acute necrotic collections in 15.3% and 10.8%, and walled-off necrosis in 4.1% and 10%, respectively. These findings are partly consistent with those of Bhattarai et al., who described an increased frequency of fluid collection in non-biliary pancreatitis, albeit with more necrosis within the biliary group [8]. Cho et al. found an increased frequency of local complications in alcoholic pancreatitis compared with biliary pancreatitis [9]. Samanta et al. also observed similar necrosis and fluid collection rates in both groups, with marginally higher rates in the alcoholic group [12]. The rate of pancreatic fistula was 1% among both the biliary and non-biliary pancreatitis groups without any statistically significant difference ( $p = 1.00$ ). Bhattarai et al. found a greater rate of pancreatic-peritoneal fistula in the non-biliary group than in the biliary group [8]. The frequency of pleural effusion was significantly elevated in the non-biliary group (56.1%) versus the biliary group (41.2%), with a significant difference ( $p = 0.003$ ), consistent with the study of Bhattarai et al [8].

Systemic complications were marginally significant in the non-biliary group (60.2%) than in the biliary group (57.8%), although the difference was statistically insignificant ( $p = 0.73$ ). Among individual complications, cardiovascular, respiratory, renal, MODS, and coagulopathy were more common in the biliary group, and sepsis was more common in the non-biliary group. None of these differences were statistically significant. The same trends were observed by Bhattarai et al., who detected increased rates of cardiovascular and renal complications and MODS in biliary pancreatitis, and respiratory complications were more frequent in the non-biliary group [8]. Samanta et al. reported that acute kidney injury was more prevalent in biliary pancreatitis. In contrast, MODS was present at the same frequency in both biliary and alcoholic pancreatitis groups [12].

The rate of splenic and/or portal vein thrombosis was higher among the non-biliary pancreatitis group (15.3%) than the biliary group (6.8%), even if the difference proved to be statistically insignificant ( $p = 0.44$ ). Interventions like necrosectomy, peripancreatic collection drainage, and pleural tapping or drainage, etc. were needed in 20.6% of the biliary group and 21.4% of the non-biliary group, without statistical significance ( $p = 1.00$ ). Bhattarai et al. noted a marginally increased rate of intervention in the non-biliary group compared to the biliary group [8].

The overall mortality in our study was 8%, with increased mortality in the biliary pancreatitis group (9.8%) compared to the non-biliary group (6.1%), although this was statistically not significant ( $p = 0.34$ ). Similar findings were noted by Fabisiak et al. and Samanta et al [10,12]. On the other hand, Bhattarai et al. noted increased mortality in the non-biliary group, and Cho et al. noted no mortality in biliary pancreatitis and 8% mortality in alcoholic pancreatitis [8,9]. The severity of acute pancreatitis was assessed using the APACHE-II score. It was observed that 17.6% of patients in the biliary group and 12.2% in the non-biliary group had severe pancreatitis (APACHE-II score  $\geq 8$ ), but this difference was statistically insignificant ( $p = 0.28$ ). APACHE-II scores were contrasted with ICU stay and systemic complications. All patients with ICU management or systemic complications had an APACHE-II score  $\geq 8$ , reflecting severe pancreatitis without any statistical significance.

This research brings to light the clinical distinctions and patterns of outcome between acute non-biliary and biliary pancreatitis. Biliary pancreatitis was more common in elderly females, whereas non-biliary pancreatitis occurred more frequently in younger men. ICU admission and death were slightly increased in the biliary group, but local complications like walled-off necrosis and pleural effusion were more common in the non-biliary group. Systemic complications were seen at similar frequencies in both groups. These results indicate that although the degree of overall severity might not vary much, recognition of the aetiology is valuable in order to individualize patient management and predict complications. Single-centre study design is a limitation of this study, as it might limit generalizability. Furthermore, subgroup analysis regarding non-biliary causes was also not carried out, which would have yielded more specific information.

## CONCLUSION

In our study, gallstones were recognized as the most frequent aetiology of acute pancreatitis, followed by alcohol. Both biliary and non-biliary pancreatitis occurred predominantly in patients aged between 18 and 40 years. Females predominantly presented with biliary pancreatitis, whereas males dominated the presentation of non-biliary pancreatitis. More patients in the biliary group needed intensive care and mechanical ventilation, but the difference was not statistically significant. Local complications were more often seen in the non-biliary group, while systemic complications were also slightly higher in this group. The requirements for interventions like ERCP, laparoscopic cholecystectomy, necrosectomy,

or fluid drainage were marginally greater in non-biliary pancreatitis. While the mortality rate was more significant in the biliary group than in the non-biliary group, the difference was not statistically significant.

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