



"CROSS SECTIONAL STUDY OF ALCOHOLIC AND NONALCOHOLIC ACUTE PANCREATITIS IN A RURAL MEDICAL COLLEGE"

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ABSTRACT

Aim of the study: The study is undertaken to study the various etiological factors and clinical factors of alcoholic and nonalcoholic acute pancreatitis and to assess the prognosis, outcome, management of an alcoholic and nonalcoholic acute pancreatitis.

Methodology: A total of 60 cases that meet the inclusion and exclusion criteria are included, Patients Trichy SRM Medical College and Research Centre selected during the study period from November 2019 to June 2021.

Results: In our study total 60 patients with acute pancreatitis were enrolled, 55% were alcoholic and remaining 45% were nonalcoholic. The mean age of presentation in our study was 39.2 years and in alcoholic it was 39.42 years, and nonalcoholic it was 39.07 years. In our present study there was a male predominance with males accounting for 90 percent in which 61.1 % are alcoholic and 38.9 percent are nonalcoholic with 9:1 male to female ratio. In our study 100 % of patients had tenderness, 3 % of alcoholic and 7.4 % of nonalcoholic presented as mass abdomen, and 21.2 % alcoholic and 7.4 % of nonalcoholic presented as ascites. In our present study 31.6 % present with hyperglycemia in which hyperglycemia is more in alcoholic (36.6 %) than nonalcoholic (25.9 %), 56 % of patient presented with hypocalcemia in more in nonalcoholic (59.5%) than alcoholic (54.54%) , and 35 % had serum amylase level more than 600IU/L which is more raised in nonalcoholic (37%) than alcoholic (33.3%), 11.6% has WBC count >15000 cells/mm³ which is more in alcoholic (15.1%) than nonalcoholic (7.04%) and 10 % has AST level > 200mg/dl which is more in nonalcoholic (11.1%) than alcoholic (9 %). USG abdomen was diagnostic in 93.3 % of the patients in our study.

Total of 18 patients developed complications 5% developed acute fluid collection among which, 13.3 % developed pseudocyst , 15 % had ascitis ,13.3 % had pleural effusion and 6.6 % developed pancreatic necrosis. Acute fluid collection and pseudocyst and pancreatic necrosis is more common in nonalcoholic than alcoholic. Ascites, pleural effusion is more common in alcoholic than nonalcoholic. One patient of nonalcoholic died of MODS and one of alcoholic died of GI bleeding. All of them managed conservatively, Of the 8 patient of biliary pancreatitis 7 underwent interval cholecystectomy, and 1 underwent ERCP + ES.

There were 13 recurrence of pancreatitis in which alcoholic pancreatitis recurrence is common than nonalcoholic pancreatitis. The mean hospital stay was 7.59 day , duration of stay in mild cases being 5.78 , The duration of stay for severe cases being 9.4 day. Duration of stay is almost equal in alcoholic and nonalcoholic pancreatitis.

CONCLUSION: Alcohol being the most common cause of acute pancreatitis in our study. Nonalcoholic pancreatitis contribute to a significant proportion of etiology of pancreatitis. Unless dealt with judiciously, they lead to recurrent episodes of pancreatitis and accompanying comorbidities. Prompt identification and diagnostic work up to identify the etiology of pancreatitis followed by appropriate treatment results in cure and prevention of untoward complications.

KEYWORDS : Alcoholic pancreatitis, nonalcoholic pancreatitis.

INTRODUCTION

Acute pancreatitis is a common condition involving the pancreas .The estimated incidence is about 3% of cases presenting with pain abdomen¹. Although most episodes are mild and self-limiting, up to a 20% of patients develop severe attacks that can be fatal .Gall stones and sustained alcohol abuse together account for 80% of acute pancreatitis.

The relative frequency of these two factors depends on prevalence of alcoholism in the population studied². Of the mechanical causes of acute pancreatitis, choledocholithiasis is the most common and between 36% and 63% will develop recurrent acute pancreatitis if stone persists. In about 10-30%, cause of acute pancreatitis is idiopathic, other rare causes include ischemia, drug induced, hyperpara thyroidism, ERCP, hypercalcemia, trauma, pancreas divisum, autoimmune, hereditary, infectious, malnutrition, scorpion bite, hyperlipoproteinemia, pregnancy¹. The severity of acute pancreatitis can be predicted based upon clinical, laboratory, and radiologic risk factors, various severity grading systems and serum markers.

Most episodes of acute pancreatitis (80%) are mild and self limiting, respond well to medical treatment, In contrast, severe pancreatitis is defined as pancreatitis associated with organ failure and/or local complications such as necrosis, abscess formation, or pseudocysts. Severe pancreatitis can be observed in 15-20% of all cases².

The management of acute pancreatitis has been controversial

over the past decades, varying between a conservative medical approach on the one hand and an aggressive surgical approach on the other.³

The IAP/APA 2012 guidelines provide recommendations concerning key aspects of medical and surgical management of acute pancreatitis⁴. There is increasing evidence towards conservative line of management. In spite of technical advances in medical and surgical fields, acute pancreatitis remains as a major cause of morbidity and mortality³.

So the study is undertaken to study the various etiological factors and clinical factors of alcoholic and non alcoholic acute pancreatitis and to assess the prognosis, outcome, management of an alcoholic and nonalcoholic acute pancreatitis.

AIMS AND OBJECTIVES

- To assess the various etiological factors and clinical factors of alcoholic and non alcoholic acute pancreatitis.
- To assess the prognosis, outcome, management of an alcoholic and nonalcoholic acute pancreatitis.

MATERIALS AND METHODS

STUDY DESIGN: Cross Sectional study

STUDY PERIOD: November 2019 to June 2021

PLACE OF STUDY: Trichy SRM Medical College and Research centre

SAMPLE SIZE: 60 patients admitted in the different surgical units will be selected using simple randomization technique.

A. Inclusion criteria: In-patients with diagnosis of acute pancreatitis admitted defined by IAP criteria (The definition of acute pancreatitis is based on the fulfillment of „2 out of 3“ of the following criteria: clinical (upper abdominal pain), laboratory (serum amylase or lipase >3 times upper limit of normal) and/or imaging (CT, ultrasonography). Aged 18 years and above

B. Exclusion criteria: Patients aged less than 18 years. Patients with chronic pancreatitis and acute on chronic pancreatitis

C. Methodology: After obtaining clearance and approval from the institutional ethical committee and written informed consent (Annexure I), in-patients with acute pancreatitis fulfilling the inclusion criteria will be enrolled in the study (Annexure II). All patients included in the study are informed about the nature of disease and the treatment to be undertaken if any. Demographic data, the nature of the complaints, a detailed history and clinical examination, appropriate investigations to identify etiological factors and management is recorded in a predesigned Performa including the surgical intervention undertaken. The data is then tabulated and subjected to statistical analysis. Follow up investigations and management if any are also recorded in the data

Sample Size Estimation

Sample size: 60 patients. Calculated using the following formula, $4PQ/D^2$. Where P is the prevalence of acute pancreatitis in clinically suspected cases of pancreatitis (69 percent) and $Q=1-P$, $D=$ precision (20 % of P) . According to the above formula sample size is 59.4

RESULTS AND OBSERVATIONS

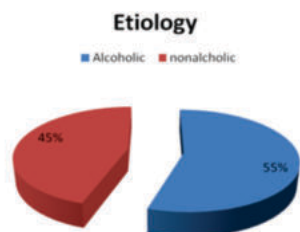
In our study total 60 patients with acute pancreatitis were enrolled, in which 33 patients were alcoholic (9 recurrence) and remaining 27 were nonalcoholic (4 recurrence).

1 patient underwent necrosectomy (alcoholic pancreatitis) and 7 went cholecystectomy for biliary pancreatitis and one patient underwent ERCP sphincterotomy.

Table:1

Etiology	No of patients:	Present study:%
Alcoholic	33	55
Nonalcoholic	27	45

Graph:1



Age and sex distribution:

Table:2

Age group	Male (n=54)		Female (n=6)		Total (60)	
	No of patients	%	No of patients	%	No of patients	%
18-30	8	13.3	0	0	8	13.33
31-40	28	46.6	1	1.6	29	48.33
41-50	10	16.6	4	6.6	14	23.33
51-60	7	11.6	1	1.6	8	13.33
61-70	1	1.6	0	0	1	1.6

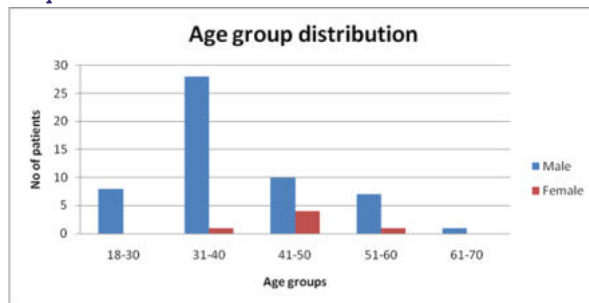
Table:3

Mean Age in Years:	Present study: years	
	39.2	
	Alcoholic	Nonalcoholic
	39.42	39.07

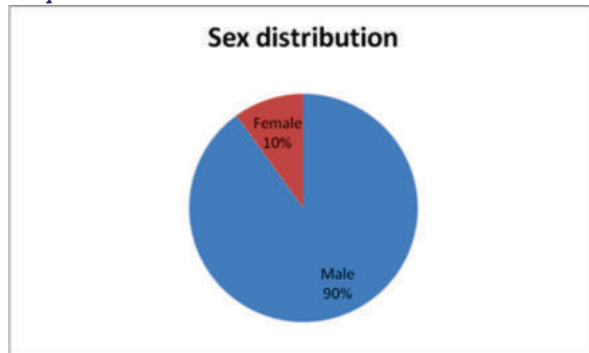
Table:4

Sex	Present study:	Comparison	
		Alcoholic	Nonalcoholic
Male%	90	61.1%	38.9%
Female%	10	0	100%

Graph:2



Graph:3



The above table shows analysis of age and sex distribution. In our study, the youngest was 20 years old and eldest was 62 years old. The highest incidence was noted in the age group of 31-40 years, accounting for 48.33 % of the patients. The mean age of presentation in our study was 39.2 years and in alcoholic it was 39.42 (33/60), and non alcoholic it was 39.07 years. In our present study there was a male predominance with males accounting for 90 percent in which 61.1 % are alcoholic and 38.9 percent is nonalcoholic with 9:1 male to female ratio.

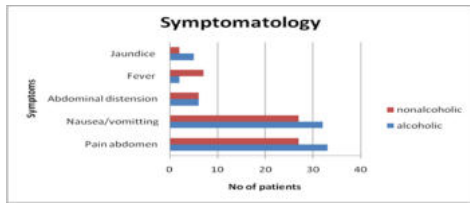
Symptomatology:

Table:5

Clinical features	No of patients (n=33)	Alcoholic %	No of patients (n=27)	Nonalcoholic %
Nausea/vomitting	32	96.9	27	100
Abdominal distension	6	18.1	6	22.2
Fever	2	6	7	11.1
Jaundice	5	15.1	2	7.4

In our study 100% of the patients presented with pain abdomen in alcoholic and nonalcoholic pancreatitis, 96.9 % of alcoholic and 100% of nonalcoholic present with nausea/vomiting. 18.1% of alcoholic and 22.2 % of nonalcoholic present with abdominal distension. 6 % of alcoholic and 11.1 % of nonalcoholic present with fever and 5 % of alcoholic and 7.4 % of non alcoholic present with jaundice.

Graph :4

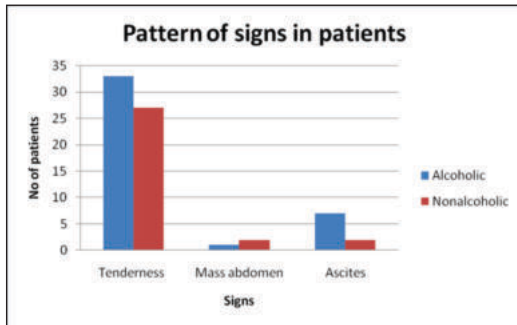


Signs:

Table:6

Signs	No of patients (n=33)	Alcoholic: %	No of patients (n=27)	Nonalcoholic: %
Mass abdomen	1	3	2	7.4
Ascitis	7	21.2	2	7.4

Graph:5



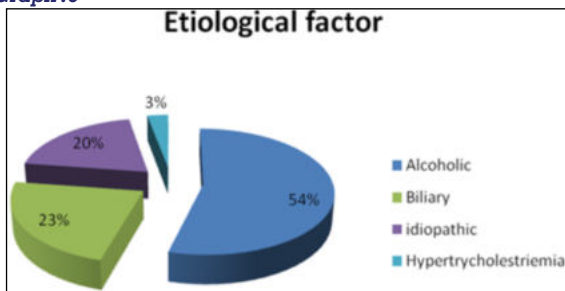
In our study 100 % of patients had tenderness, 3 % of alcoholic and 7.4 % of nonalcoholic presented as mass abdomen, and 21.2 % alcoholic and 7.4 % of nonalcoholic presented as ascites.

Etiological factors:

Table:7

Etiology	No of patients:	Present study: %
Alcoholic	33	55
Nonalcoholic	27	45
Biliary	14	23.3
Idiopathic	12	20
Hypertrycholestriemia	2	3

Graph :6



In our present study alcoholism was the main etiological factor accounting for 55 % and non alcoholic include 45 % in which 23.3 % is biliary pancreatitis and 12 % is idiopathic and 3 % is hypertrycholestriemia.

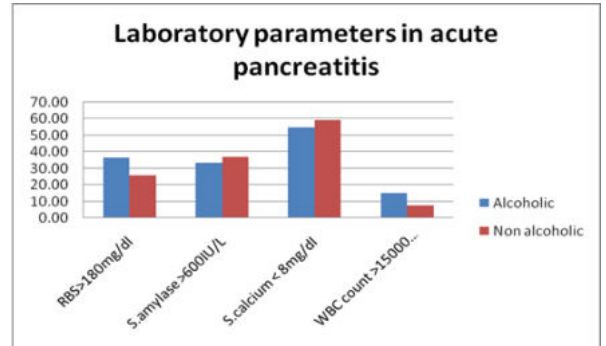
Laboratory investigations:

Table :8

Investigations	No of patients (n=33)	Alcoholic %	No of patients (n=27)	Nonalcoholic %	Total percent a ge:

RBS > 180mg/dl	12	36.36	7	25.9	31.6
S.amylase > 600IU/L	11	33.3	10	37	35
S.calcium < 8mg/dl	18	54.54	16	59.25	56.6
WBC count > 15000 cells/mm3	5	15.1	2	7.04	11.6
AST > 200mg/dl	3	9	3	11.1	10

Graph :7



In our present study 31.6 % present with hyperglycemia in which hyperglycemia is more in alcoholic (36.6 %) than nonalcoholic (25.9 %), 56 % of patient presented with hypocalcemia in more in nonalcoholic (59.5%) than alcoholic (54.54%), and 35 % had serum amylase level more than 600IU/L which is more raised in nonalcoholic (37%) than alcoholic (33.3%), 11.6% has WBC count > 15000 cells/mm3 which is more in alcoholic (15.1%) than nonalcoholic (7.04%) and 10 % has AST level > 200mg/dl which is more in nonalcoholic (11.1%) than alcoholic (9%).

USG Examination:

Table 9:

USG abdomen	Present study
Diagnostic	93.3

USG abdomen was diagnostic in 93.3 % of the patients in our study.

Severity of acute pancreatitis:

In our study 68.3 % of patients had mild disease in which alcoholic cause is 40 percent and nonalcoholic cause is 28.3% .31.6 % contribute severe cases which according to Atlanta 2012 is divided into moderately severe pancreatitis and severe pancreatitis. In which moderate pancreatitis constitute 26.6 % with equal contribution from alcoholic and nonalcoholic pancreatitis and severe constitute 5 % in which alcoholic contribution is 1/3rd of nonalcoholic.

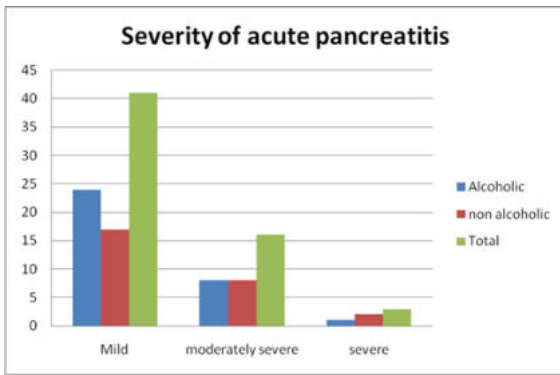
Table :10

Severity	No of patients n=60	Present study %	No of patients n=33		
			Alcoholic %	No of patients n=27	Nonalcoholic %
Mild	41	68.3	40	17	28.3
Severe	19	31.6	9	10	16.6

Table :11

Severity pancreatitis (31.6%)	Moderately severe pancreatitis	No of patients n=60	Present study %	No of patients n=33		
				Alcoholic %	No of patients n=27	Nonalcoholic %
		16	26.6	8	13.3	8
	Severe pancreatitis	3	5	1	1.6	2

Graph :8



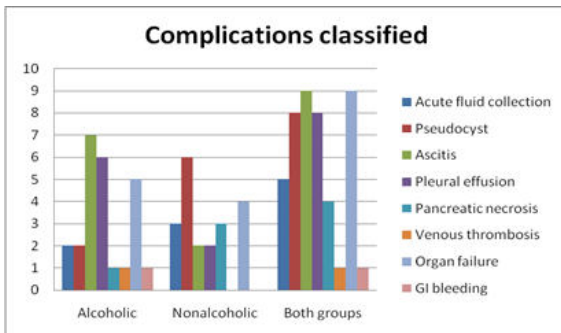
Complications:

Although 15 % of patients in the present study have ascitis which was higher compared to other studies which is more in alcoholic than nonalcoholic, the rate of pancreatic necrosis was more in other studies as against 6.6 % in our present study, more in nonalcoholic, pseudocyst is 13.3 in which 10 % in nonalcoholic and 3.3 percent in alcoholic. Organ failure was seen 15 % whereas its much higher in other studies .1.6 % (one non alcoholic patient) has Superior mesenteric vein thrombosis, 1.6 (one alcoholic patient) has GI bleed and died .All other complications were managed conservatively.

Table :12

Complications	No of patients n=60	Present study %	No of patients n=33			
			Alcoholic %	Non alcoholic %	Alcoholic %	Non alcoholic %
Acute fluid collection	5	8.3	2	3.3	3	5
Pseudocyst	8	13.3	2	3.3	6	10
Ascitis	9	15	7	11.7	2	3.3
Pleural effusion	8	13.3	6	10	2	3.3
Pancreatic necrosis	4	6.6	1	1.6	3	5
Venous thrombosis	1	1.6	1	1.6	0	0
Organ failure	9	15	5	8.4	4	6.6
GI bleeding	1	1.6	1	1.6	0	0
Pancreatic abscess	0	0	0	0	0	0

Graph:9



Procedure:

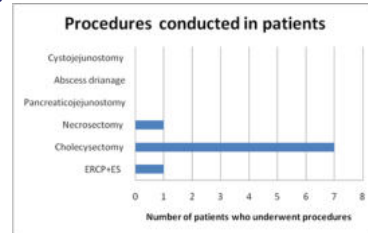
Seven (11.6 %) patient with biliary pancreatitis undergone cholecystectomy, another patient (1.6%) with biliary pancreatitis underwent ERCP with sphincterotomy. One patient with alcoholic pancreatitis undergone necrosectomy. The other patients were managed conservatively. This low rate of intervention in our study was because , majority of our patients had mild disease , and also because alcohol was the

most common etiology. Patients in other studies underwent various procedures like ERCP with sphincterotomy, cholecystectomy, pancerticojejunostomy for pancreatic fistula, cystojejunostomy for pseudocyst and open drainage of abscess.

Table:13

Procedure	No of patients n=60	Present study: %
ERCP+ES	1	1.6
Cholecysectomy	7	11.6
Necrosectomy	1	1.6
Pancreaticojejunostomy	0	0
Abscess drainage	0	0
Cystojejunostomy	0	0

Graph :10



Hospital stay:

Overall hospital stay is 7.59 days. The duration of stay in mild cases being 5.78 .The duration of stay in severe cases being 9.4 days. Duration is almost comparable in alcoholic and nonalcoholic cases.

Table :14

Mean hospital stay	Present study (Days)	Alcoholic (Days)	Non alcoholic (Days)
Mild disease	5.78	5.61	5.97
Severe disease	9.4	9.49	9.31

Mortality: The mortality rate in our study at 3.3% .One patient died of GI bleeding (alcoholic) and other died of sepsis with MODS (nonalcoholic).

Table:15

Mortality Percentage	Present study	Alcoholic	Nonalcoholic
	3.3	1.6	1.6

DISCUSSION

Acute pancreatitis is a common disease entity .Frequent occurrence and serious complications have brought into fore the issues regarding management.While diagnosing a case of acute pancreatitis, a through history, a complete physical examination and biochemical tests are necessary. Radiological confirmation may be required. In this study, analysis of clinical presentation of acute pancreatitis was done. Relevant investigations were carried out and patients appropriately managed depending upon the etiology and severity of acute pancreatitis.

AGE

The mean age of presentation in our study was 39.2 years and in alcoholic it was 39.42 (33 /60), and non alcoholic it was 39.07 years and is comparable with study of kashid et al and choudhuri et al.other studies has a late presentation.

Table:16

Mean Age in Years:	Kashid Et al 54	Choudhuri Et al 55	Pupelis G Et al 56	Buchler Et al 5	Present study:
	35	44.89	47	55.1	39.2
					Alcoholic
					Nonalcoholic
					39.42
					39.07

Sex:

There was a male predominance in our study with males accounting for 90 percent in which 61.1 % are alcoholic and 38.9 percent is nonalcoholic. The other studies although had a higher percentage of males the ratio of male to female ratio is low then our study 9:1 male to female ratio.

Table:17

Sex	Kashid Et al 54	Choud huri Et al 55	Pupelis G Et al 56	Buchl er Et al 5	Prese nt study:	comparison	
						Alcoholic	Nonalcoholic
Male%	70.1	66.6	73.7	61	90	61.1	38.9
Female %	29.9	33.4	26.3	39	10	0	100

Etiology:

Alcohol was the main etiological factor in our study and present in about 55 % of patients. This was pupelis G et al study. In the other studies gallstone was the main etiological factor. The percentage of idiopathic cases was comparable.

Table:18

Etiology	Kashid Et al 54	Choud huri Et al 55	Pupelis G Et al 56	Buchler Et al 5	Sand J Et al 3	Present study:
Alcoholic	29.1	45.83	54	33	70	55
Nonalcoholic	70.9	54.17	46	67	30	45
Biliary	36.4	26.02	19	45	20	23.3
Idiopathic	14.5	19.37	27	22	10	20
Hypertrychol estriemia	0	0	0	0	0	3

Clinical features:

The clinical features in the present study were comparable to the study by kashid A et al⁵⁴. **Table :19**

Clinical features	Kashid A et al 54	Present study	comparison	
			alcoholic	nonalcoholic
Pain abdomen	92.73	100	100	100
Nausea/ vomiting	60	98.3	96.9	100
Abdominal distension	16.36	20	18.1	22.2
Fever	20	8.3	6	11.1
Jaundice	7.27	11.6	15.1	7.4

Serum amylase sensitivity:

The sensitivity of serum amylase was 96.6 % in the present study and was comparable to the study by thomson⁵⁷.but in the study by kashid a et al 54 it was 50.9% sensitive and this can be attributed to the early presentation of patients to our institution.

Table:20

Serum amylase	Anand kashid et al ⁵⁴	Thomson et al ⁵⁷	Present study
Sensitivity	50.9	95.6	96.6

Accuracy Of Usg Abdomen:

USG was diagnostic in 93.3 % of patients in our study and this was comparable to the study by ammori et al¹⁵. It was diagnostic in 66.67 % of patients in the study by Kashid A et al and this may be because USG is operator dependent and also because the view can be obscured by overlying bowel gas.

Table:2

USG abdomen	Anand kashid et al 54	Ammori BJ et al 15	Present study
Diagnostic	66.67	86	93.3

Severity of acute pancreatitis:

68.3 % of patients had mild disease in our study in which alcoholic cause is 40 percent aend nonalcoholic cause is

28.3% whereas studies has higher proportion of severe diseases.31.6 % contribute severe cases which according to Atlanta 2012 is dived into moderately severe pancreatitis and severe pancreatitis. In which moderate pancreatitis constitute 26.6 % with equal contributions from alcoholic and nonalcoholic pancreatitis.

And severe constitute 5 % in which alcoholic contribution is 1/3rd of nonalcoholic. Ours is a government funded institute and most of the patients belonging to low socioeconomic lstatus with acute pain refereed, and this may be the reason for less percentage of severe cases.

Table:22

Severity	Kashid A et al 54	Choudhu ri et al 55	Buchler Mwet al 5	Present study	comparison	
					alcoholic	nonalcoholic
Mild	52.73	47.7	58	68.3	40	28.3
Severe	47.27	52.3	42	31.6	15	16.6

Table:23

	Present study	Alcoholic	Nonalcoholic	
Severe pancreatitis (31.6%)	Moderately severe pancreatitis	26.6	13.3	13.3
	Severe pancreatitis	5	1.6	3.3

Complications:

Although 15 % of patients in the present study have ascites which was higher compared to other studies which is more in alcoholic than nonalcoholic, the rate of pancreatic necrosis was more in other studies as against 6.6 % in our present study, in nonalcoholic, pseudocyst is 13.3 in which 10 % in nonalcoholic and 3.3 percent in alcoholic. Organ failure was seen 15 % whereas its much higher in other studies and this is because most of our patients had mild disease.

Table:24

Complications	Kashi d A Et al 54	Chodhu ri Et al 55	Buchl er Et al 5	Prese nt study	comparison	
					alcohol lic	nonalco holic
Acute fluid	34.54	40.5	-	8.3	3.3	5
Pseudocyst	0	24.9	2.45	13.3	3.3	10
Ascitis	0	-	-	15	11.7	3.3
Pleural effusion	34.54	-	-	13.3	10	3.3
Pancreatic necrosis	18.18	40.5	42.15	6.6	1.6	5
Venous thrombosis	0	0	0.5	1.6	1.6	0
Organ failure	29	40.5	36.28	15	8.4	6.6
GI bleeding	1.8	3.1	0	1.6	1.6	0
Pancreatic abscess	5.45	0	0.5	0	0	0

Procedure :

7 (11.6%) patient with biliary pancreatitis underdone cholecystectomy, another patient (1.6%) with biliary pancreatitis underwent ERCP with sphincterotomy. The other patients were managed conservatively. This low rate of intervention in our study was because, majority of our patients had mild disease, and also because alcohol was the most common etiology. Patients in other studies underwent various procedures like ERCP with sphincterotomy, cholecystectomy, pancerticojejunostomy for pancreatic fistula, cystojeju nostomy for pseudocyst and open drainage of abscess.

Table:13

Procedure	Kashid A et al	Buchler MW et al	Present study
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ERCP+ES	20	28.4	1.6
Cholecystectomy	16.3	26.5	11.6
Necrosectomy	9.1	13.7	0
Pancreaticojejunostomy	3.64	0.5	1.6
Abscess drainage	5.45	0.5	0
Cystojejunostomy	0	2.5	0

Duration of hospital stay:

The duration of stay in mild cases being 5.78 is comparable to the other studies. The duration of stay in severe cases being 9.4 days was less compared to other studies.

Table:14

Mean hospital stay	Kashid A et al	Choudhuri G et al	Buchler MW et al	Present study
Mild disease	10	6.6	13	5.78
Severe disease	13.5	17.32	44.1	9.4

Mortality

The mortality rate in our study at 3.3% is less compared to studies as the percentage of severe cases was more in other studies.

Table:15

Mortality	Kashid A et al	Choudhuri G et al	Buchler MW et al	Present study
Percentage	5.45	6.5	4.4	3.3

CONCLUSION

Acute pancreatitis is a common cause of acute abdomen in patients presenting to the surgical emergency department. Alcohol being the most common cause of acute pancreatitis in our study. Non alcoholic pancreatitis contributes to a significant proportion of etiology of pancreatitis. Unless dealt with judiciously, they lead to recurrent episodes of pancreatitis and accompanying comorbidities. Prompt identification and diagnostic work up to identify the etiology of pancreatitis followed by appropriate treatment results in cure and prevention of untoward complications.

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