Original Research Article

Early Indicators Of Acute Biliary Pancreatitis (Original Study) Contributing Authors

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ABSTRACT
Acute pancreatitis is an inflammatory disease of the pancreas and can be caused by several factors such as gallstones, alcohol, trauma, infections, and hereditary factors. The incidence of alcoholic pancreatitis is higher in male; however, more women develop this disorder since gallstones occur with increased frequency in women. Gallstones are the most common cause of acute pancreatitis worldwide. The aim of the study is to find out early indicators of Acute Biliary Pancreatitis. This retrospective study was conducted for a period of 2 years on 650 patients of all age groups. The gallstone is the most common cause of AP. The female to male ratio in this study was 1.8:1. The mean age of male patients was 40.3 ± 11.82 years and that of females was 39.6 ± 9.65 years. Serum bilirubin, ALT and amylase when compared with biliary and non-biliary patients, the difference was found to be statistically significant. The difference between severity and type of pancreatitis was observed to be statistically significant with $p < 0.05$. The biliary pancreatitis had statistically significant %age of SAP (23%) as compared to non-biliary pancreatitis (13.8%). The Severe Acute Pancreatitis (75%) had statistically significant >1-week hospital stays as compared to moderately SAP (46.9%), followed by mild AP (5.4%). The present study found that there is a significant co-relation between young age, female gender, raised serum bilirubin, ALT & Amylase and these factors are predictors of Acute Biliary Pancreatitis.

Keywords: Acute Pancreatitis, Gallstones, Biliary, Non-Biliary & Parameters.

INTRODUCTION

Acute pancreatitis is an inflammatory disease of the pancreas and can be caused by several factors such as gallstones, alcohol, trauma, infections, and hereditary factors. About 75% of pancreatitis is caused by gallstones or alcohol[1].

Acute pancreatitis is a relatively common disease that affects about 300,000 patients per annum in America with a mortality of about 7%. Acute pancreatitis is mild and resolves itself without serious complications in 80% of patients, but it has complications and a substantial mortality in up to 20% of patients despite the aggressive intervention[2]. The incidence of alcoholic pancreatitis is higher in male; however, more women develop this disorder since gallstones occur with increased frequency in women[3].

Of note, 10% to 20% of patients with acute pancreatitis have no known associated cause. Although this condition is currently termed idiopathic. Acute pancreatitis typically presents with severe upper abdominal pain which may radiate through to the back and be associated with nausea and vomiting. Gallstones are the most common cause of acute pancreatitis worldwide. According to the physical examination, radiological findings and laboratory results the etiology of the acute pancreatitis is diagnosed as biliary or non-biliary.

AIM AND OBJECTIVES:

The aim of the study is to find out early indicators of Acute Biliary Pancreatitis.

MATERIAL AND METHODS

This retrospective study was conducted in Srinagar for a period of 2 years w.e.f. September 2017 to September 2019 on 650 patients of all age groups with clinical/ laboratory/ imaging findings suggestive of acute pancreatitis. The study was approved by the Institute Ethical Committee and informed consent was obtained from all the study subjects.

INCLUSION CRITERIA

- Patients with acute abdominal pain and tenderness suggestive of pancreatitis.
- Serum amylase/lipase $\geq$ 3 times the normal.
- Imaging findings (USG and/or CT) suggestive of acute pancreatitis.

EXCLUSION CRITERIA:

- Chronic calcific pancreatitis
- Those patients refusing consent for participation

Data was collected with the help of a structured proforma which consists of the items (data) regarding demographic variables, clinical manifestations, and investigations detail. Data was tabulated and analyzed with SPSS 20.0 version.

OBSERVATIONS AND RESULTS

Table 1: Etiological profile with gender distribution						
Etiology	**Male**		**Female**		**Total**	
	No.	%age	No.	%age	No.	%age
Gall stone pancreatitis	74	31.5	196	47.2	270	41.5
Idiopathic	76	32.3	120	28.9	196	30.2
Ascariasis induced AP	19	8.1	36	8.7	55	8.5
Drug	14	6.0	13	3.1	27	4.2
Hyperparathyroidism	14	6.0	6	1.4	20	3.1
Hypertriglyceridemia	13	5.5	7	1.7	20	3.1
Pancreatico biliarytumor	7	3.0	13	3.1	20	3.1
Pregnancy	0	0.0	14	3.4	14	2.2
Alcohol	8	3.4	0	0.0	8	1.2
Trauma	4	1.7	4	1.0	8	1.2
Autoimmune AP	1	0.4	4	1.0	5	0.8

Pancreatic Divisum	3	1.3	2	0.5	5	0.8
Annular pancreas	2	0.9	0	0.0	2	0.3

Table 1 represented that the gallstone is the most common cause of AP followed by idiopathic group, ascariasis, drug, hyperparathyroidism, hypertriglyceridemia, pregnancy, alcohol, trauma,

AIP, PD least common annular pancrease.

Table 2: Gender distribution of study patients		
Gender	Frequency	Percentage
Male	235	36.2
Female	415	63.8
Female: Male=1.8:1		

Table 2 indicates that majority of the patients were females 415 (63.8%) as compared to male patients 235 (36.2%). The female to male ratio in this study was 1.8:1.

Figure 1: Gender distribution

Table 3: Age and gender distribution of study patients				
Age (Years)	Male		Female	
	No.	%age	No.	%age
11-25	40	17.0	55	16.4
26-40	99	42.1	184	44.3
41-55	58	24.7	115	27.7
56-70	31	13.2	50	12.0
71-85	7	3.0	11	2.6
Total	235	100	415	100
Mean±SD	40.3±11.82		39.6±9.65	

Table 3 indicates association of age with gender in the study, the mean age of male patients was 40.3±11.82 years and that of females was 39.6±9.65 years. This table shows that there is significant rise of Acute Pancreatitis with female gender and young age group.

Figure 2: Age and Gender Distribution of study patients

Table 4: Serum biochemical markers whose values were significantly different between biliary and non-biliary pancreatitis						
Variable	Cut off	Biliary [n=339]		n biliary[n=311]		P-value
		No.	%age	No.	%age	
Serum Bilirubin	<1mg/dl	102	30.1	223	71.7	<0.001*
	>1mg/dl	237	69.9	88	28.3	
ALT	<120	89	26.3	208	66.9	<0.001*
	>120	250	73.7	103	33.1	
Amylase	<1000	112	33.0	140	45.0	0.002*
	>1000	227	67.0	171	55.0	

Statistically Significant Difference (P-value <0.05)

Table 4 depicted the serum bilirubin, ALT and amylase when compared with biliary and non-biliary patients, the difference was found to be statistically significant. The biliary pancreatitis had statistically significant high serum bilirubin, ALT, and serum amylase levels.

Table 5: Comparison of severity between biliary and non-biliary pancreatitis					
Severity	Biliary Pancreatitis		Non-Biliary Pancreatitis		P-value
	No.	%age	No.	%age	
Mild Pancreatitis	175	51.6	185	59.5	
Moderate Pancreatitis	86	25.4	83	26.7	
Severe Pancreatitis	78	23.0	43	13.8	0.009*

Table 5 indicates that biliary pancreatitis had statistically significant %age of SAP (23%) as compared to non-biliary pancreatitis (13.8%).

Figure 3: Comparison of severity between biliary and non-biliary pancreatitis

everity of acute pancreatitis in study patients				
spitalstays	Mild AP[n=360]	severe AP[n=169]	evere AP[n=121]	P-value
<1 week	341 (94.6%)	90 (53.1%)	30 (25%)	<0.001*
>1 week	19 (5.4%)	79 (46.9%)	91 (75%)	

In table 6 Duration of hospitalization was compared with severity of acute pancreatitis and it was found that 341 (94.6%) patients with mild acute pancreatitis, 90 (53.1%) patients with moderately severe acute pancreatitis and 30 (25%) patients with severe acute pancreatitis needed hospitalization for <1 week, whereas >1 week hospitalization was needed in 19 (5.4%) in patients with mild acute pancreatitis, 79 (46.9%) with moderately severe acute pancreatitis and 91 (75%) with severe acute pancreatitis. The Severe Acute Pancreatitis (75%) had statistically significant >1-week hospital stays as compared to moderately SAP (46.9%), followedby mild AP (5.4%).

Figure 4: Hospital stay as per severity of acute pancreatitis

DISCUSSION
In this retrospective study 650 patients were included. Detailed examinations and investigations were carried out in all the cases. Data was analyzed and discussed with previous literature. The present study revealed that the gallstone was the most common cause of AP followed by idiopathic group, ascariasis, drug, hyperparathyroidism, hypertriglyceridemia, pregnancy, alcohol, trauma, AIP, PD least common annular pancrease. Similarly, Nesvaderani M et al. (2015)[4] reported that about in 50% study subjects cause of AP was gallstones (40%), 25.6% idiopathic, 22% alcohol induced and 3.9% post ERCP. Mortality in this study was 1%. Gluszek S and Koziel D (2012)[5] found cholelithiasis was the main cause of AP (30.1%; 50.8% women and 17.7% men). Alcohol was the cause of AP in 24.1% cases (2.7% women and 36.9% men). Coexisting cholelithiasis and alcohol abuse was found in 2.9% cases (1.1% women and 4% men). AP developed during pregnancy in one case. The cause was not found in the remaining 41.2% of patients.

In our study majority of the patients were females 415 (63.8%) as compared to male patients 235 (36.2%). The female to male ratio in this study was 1.8:1. Carnovales A (2005)[6] study of 1,135 patients had a male to female ratio of 1: 1.6 (431 males and 704 females), Uhl W (1999)[7] in his study of 302 patients has a male to female ratio of 1.85:1.

There was significant association of age with gender, the mean age of male patients was 40.3 ± 11.82 years and that of females was 39.6 ± 9.65 years. There is significant association of age and female gender with rise of Acute Pancreatitis. Similar observations were made by Chand P et al. (2017)[8] found 40% patients aged 26-40 years, followed by 26.67% patients aged 41-55 years. In a study by Balthazar EJ et al. (1985)[9] average age was 45 years.

Serum bilirubin, ALT and amylase when compared with biliary and non-biliary patients, the difference was found to be statistically significant. The biliary pancreatitis had statistically significant high serum bilirubin, ALT, and serum amylase levels. Findings revealed that increased Alkaline Phosphatase, total bilirubin, direct bilirubin, amylase, and lipase levels may be used in prediction of biliary pancreatitis. Zarnescu NO et al. (2015)[10] observed the significant association with biliary pancreatitis: older age, female gender, and elevated AST, ALT.

In the present study the biliary pancreatitis had statistically significant %age of SAP (23%) as compared to non-biliary pancreatitis (13.8%). It was found that 341 (94.6%) patients with mild

acute pancreatitis, 90 (53.1%) patients with moderately severe acute pancreatitis and 30 (25%) patients with severe acute pancreatitis needed hospitalization for <1 week, whereas >1-week hospitalization was needed in 19 (5.4%) in patients with mild acute pancreatitis, 79 (46.9%) with moderately severe acute pancreatitis and 91 (75%) with severe acute pancreatitis.

CONCLUSION:

The present study found that there was a significant co-relation between young age, female gender, raised serum bilirubin, ALT & Amylase and these factors are predictors of Acute Biliary Pancreatitis. The study further concluded that biliary pancreatitis tends to have more severe pancreatitis and prolonged hospital stay.

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