

# Aetiological Factors of Acute Pancreatitis

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Acute pancreatitis is a non-bacterial inflammation of pancreas. It is caused by a variety of aetiological factors. The two most common being gall stones and alcoholism. Together they account for 80% cases of acute pancreatitis. The other causes are abdominal trauma, hyperlipidaemia, hypercalcaemia and viral infections. This descriptive, non-interventional case report study was conducted at Mayo Hospital, Lahore from March 1998 to February 2000, to study the aetiological factors in our circumstances. It included 45 patients with mean age of 45 years and male to female ratio of 1:1. Gall stones were the commonest factor in 53.33% (n=24), followed by abdominal trauma is 28.88% (n=13). Alcohol in take, ERCP, hyperlipidaemia and idiopathic pancreatitis were 6.66%, 4.44%, 4.44% and 2.22% respectively. The overall mortality was 22.22% (n=10)

**Key words:** Acute pancreatitis, gallstones, abdominal trauma, alcoholism.

Acute pancreatitis is a non-bacterial inflammation of pancreas. It occurs due to liberation and activation of pancreatic enzymes resulting in the digestion of the gland<sup>1</sup>. Acute pancreatitis is a common emergency. The attack of pancreatitis may be mild or severe. Mild attack is self-limiting while the severe attack may be life-threatening<sup>2</sup>. The incidence of acute pancreatitis varies from 21 to 283 cases per million population. The mortality of acute pancreatitis is 10-15%<sup>3</sup>. Deaths occurring in the early phase of attack are due to multiple organ failure. While after the first week deaths occur due to infective complications<sup>4,11,12</sup>.

Acute pancreatitis is caused by multiple aetiological factors<sup>5</sup>. The two most common causes of acute pancreatitis are gall stones and alcoholism<sup>2</sup>. Together they account for 80% cases of acute pancreatitis<sup>6</sup>.

The relative frequency with which each of these aetiologies are found depends upon the prevalence of alcohol consumption in the population being evaluated<sup>7</sup>. The other causes of acute pancreatitis are abdominal trauma, hyperlipidaemia, hypercalcaemia, ERCP, viral infection<sup>8,13</sup>.

The importance of knowing the aetiological factor is that the removal of the cause can prevent recurrence of attack. For example, in a patient of gall stone pancreatitis, the removal of gall stones at an appropriate time, can prevent the recurrence of attack of pancreatitis<sup>2</sup>. In untreated patients, the chances of recurrent attack are 33% to 66%. The recurrence most often occur within 6-8 weeks of the first attack<sup>9,14</sup>.

The incidence of aetiological factors varies among population<sup>1</sup>. For example in USA, the

alcoholism is the most common cause of acute pancreatitis than the gall stones. While in UK the gall stones are commonest cause of acute pancreatitis than alcoholism<sup>5,6</sup>.

The purpose of this study was to highlight the commonest causes of acute pancreatitis presenting at Mayo Hospital, Lahore.

## Material and methods

This was a descriptive, non-interventional, case report study. It included all the patients presented to surgical emergency during March 1998 to February 2000. The diagnosis of acute pancreatitis was made on the basis of abdominal pain, vomiting and raised serum amylase. Abdominal ultrasound was performed to visualize pancreas and to establish probable diagnosis and aetiological factor.

The patients were admitted, resuscitated, investigated and treated. Proper history, clinical examination and investigations were carried out to access the probable aetiology.

## Results

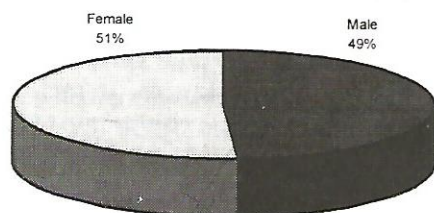
This study was conducted for a period of two years from March 1998 to February 2000, it included 45 patients who presented with signs and symptoms of acute pancreatitis.

Table 1. Age distribution

Age group	n=	%age
21-30 years	14	31.1
31-40 years	12	26.66
41-50 years	10	22.22
51-60 years	5	11.11
61-70 years	3	6.66
71-80 years	1	2.22

The minimum age at presentation was 24 years, to maximum age of 80 years, with median age of 45 years and mean age of 45.79 years. The male to female ratio was 1:1 (Table 2 & Fig.1)

Fig.1 Sex distribution

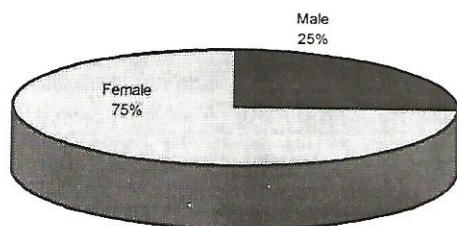


Out of 45 patients with a cute pancreatitis, in 29 patients the diagnosis was established on clinical grounds with help of increased serum amylase level in rest of the 16 patients, the diagnosis was made after laparotomy; out of these patients 12 had history of trauma and 4 had signs and symptoms mimicking acute intestinal obstruction for which exploratory laparotomy was performed; that showed blood stained fluid. In peritoneal cavity, swollen pancreas and chalky white deposits on the greater omentum, mesentery and around pancreas (Table 2).

Table 2. Aetiological factors

Aetiological factors	N=	%age
Gall stones	24	53.33
Abdominal trauma	13	28.88
Alcohol	3	6.66
ERCP	2	4.44
Hyperlipidaemia	2	4.44
Idiopathic	1	2.22
Total	45	100

Fig.2 Sex distribution in patients with gall stone pancreatitis



The distribution and incidence of different aetiological factors were also analysed on the basis of sex distribution, so that to establish which aetiological factor is common in particular sex. Gall stones were common aetiological factors among female patients with male to female ratio of 3:1 (Fig.2).

In patients with pancreatitis secondary to trauma the incidence of male patients are more as compared to female (Table 3).

Table 3

Sex	n=	%age
Male	11	85
Female	02	15

In traumatic pancreatitis 10 patients had penetrating trauma and 03 had blunt trauma; of the penetrating trauma 80% (n=8) had firearm injury and 20% (n=2) had stab injuries (Table 4).

Table 4. Mechanism of traumatic pancreatitis

Mechanism	n=	%age
Penetrating	10	77
FAI	08	
Stab	02	
Blunt	03	23

Following complications were noted with the mortality of 22.22% (n=10) (Table 5).

Table 5. Complications in patients with acute pancreatitis.

Complications	n=	%age
Pancreatic abscess	01	2.22
Infected pancreatic necrosis	02	4.44
Pseudocyst	03	6.66
Pleural effusion	02	4.44
Septicaemia	03	6.66
Multiple organ failure	06	13.33
Haemorrhage from splenic artery	01	2.22
Mortality	10	22.22

**Discussion**

Acute pancreatitis is a common emergency it is caused by a variety of aetiological factors. Different studies show different aetiologies as common factors like in United States alcohol is the commonest cause i.e., 53% as compared to biliary stones 28%, whereas in Great Britain 52% had biliary stone aetiology compared with alcohol 7%. In our present study gall stones was the commonest aetiological factor followed by trauma (Table 6).

In our study, 24(53.33%) patients of acute pancreatitis were due to gall stones. There were 18

female and 6 were males. The range of age was 24-80 years. The median age was 45 years. There were 20 patients with gall stone pancreatitis who presented with upper abdominal pain.

There were 4 patients of gall stone pancreatitis who were diagnosed after laparotomy. These patients presented with generalized abdominal pain and distension along with vomiting. Laparotomy was performed because the diagnosis was not clear and there was suspicion of some other intra-abdominal pathology other than acute pancreatitis. In 9 patients with gall stones pancreatitis the attack was severe having 3 or more than 3 Ranson's signs.

Table 6. Aetiological factors for acute pancreatitis around the world<sup>10,15,16</sup>.

Country	Pts.	Causes %age			
		Biliary stones	Alcohol	Idiopathic	Other
Present study	45	53	6	3	28
USA	714 7	28	53	8	11
UK	153 9	52	7	34	7
Germany	279	51	22	24	3
France	294	34	33	-	-
Sweden	201	48	21	15	16
Denmark	163	33	42	21	29
India	42	17	23	31	29
Hong Kong	483	41	10	39	10

In our study abdominal trauma was the second most common diagnosis. According to Laze J Green Field<sup>10</sup> abdominal trauma accounts for 1% to 2% cases. The higher incidence of trauma in our society is probably due to increased incidence of road traffic accidents and violence.

### Conclusion

Our study showed that gall stones (53.33%) was the most common aetiological factor followed by abdominal trauma (28.88%); both can be prevented by early diagnosis and treatment is case of gall stones and by decreasing violence in case of traumatic

pancreatitis.

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