

## A Study of Clinical Profile and Outcome of Acute Pancreatitis



### Medical Science

**KEYWORDS :** acute pancreatitis, biliary pancreatitis, serum amylase and lipase

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### ABSTRACT

*Background: Acute pancreatitis is defined as an inflammatory process of the pancreas with possible peripancreatic tissue and multi-organ involvement inducing multi-organ dysfunction syndrome(MODS) with increased mortality rate. Acute pancreatitis may be categorized as mild or severe. Mild acute pancreatitis is characterized by interstitial edema of the gland and minimal organ dysfunction. Severe acute pancreatitis is characterized by pancreatic necrosis, severe systemic inflammatory response and often multi-organ failure. This study includes clinical presentation and complication and outcome of management of acute pancreatitis in our institute.*

*Methods: We designed a prospective hospital based time bound study. Data were collected from 01-06-2013 to 31-12-2014. The study population consisted of 40 cases of acute pancreatitis those who fulfilled the diagnostic criteria. This was based on the UK guidelines for management of acute pancreatitis.*

*Results: Out of 40 patients included in study, predominantly were males 33(82.5%) and 7(17.5%) were females. Majority were belonging to age group of 41-60(45%) with median age of 49.5 yrs. Most common etiology for acute pancreatitis was biliary followed by alcoholism(37.5%). Hyperlipidemia(2.5%) and traumatic (2.5%) pancreatitis was found in one patient each and where no cause was found labeled as idiopathic(12.5%). In our study Biliary pancreatitis was sole cause of pancreatitis in females(100%). In males alcoholism induced pancreatitis (45.45%) was most common, second commonest was biliary etiology.*

*Conclusion: Males are predominantly affected. Alcoholism(45.45%) is the most common etiology among them followed by biliary etiology(33.30%). Biliary pancreatitis was sole cause of acute pancreatitis in females(100%). Majority of patients were belonging to age group of 41-60(45%). In our study Diabetes mellitus(67.5%) was most common associated comorbidity followed by alcoholism(45%) and obesity(27.5%). Timely intervention by endoscopist and surgeons are crucial to reduce morbidity mortality.*

### INTRODUCTION

Acute pancreatitis is an acute inflammatory condition of the pancreas that may extend to local and distant extra pancreatic tissues. It is broadly classified as mild or severe. Most cases of acute pancreatitis fall into the mild category, with favourable recovery. However 15% to 20% cases of acute pancreatitis are severe and may result in a prolonged hospitalization, and local as well as systemic complications like systemic inflammatory response syndrome (SIRS), multi-organ system failure and death. Gallstones and alcohol are the two most common causes of acute pancreatitis in western countries accounting for 80% of cases.<sup>1</sup>The diagnosis of acute pancreatitis is supported by an elevation of the serum amylase and lipase in excess of three times the upper limit of normal. Diagnostic imaging techniques like ultrasound abdomen pelvis, ERCP and CT scan abdomen are very useful and can be considered to confirm the diagnosis of acute pancreatitis in doubtful cases.<sup>2</sup>

Commonly used assessment scales for evaluating the severity of pancreatitis attacks are, Ranson's criteria, Glasgow Pancreatitis Severity Score, Apache II scoring system and the CT Severity Index.<sup>3-5</sup>

Several studies have identified obesity as a risk factor for developing local and systemic complications in acute pancreatitis. Meta-analysis of different studies reveals a significant increase in relative risk for local, and systemic complications, and death in obese patients with acute pancreatitis. Some studies actually propose that acute pancreatitis scoring systems should include obesity as an independent primary predictive factor of severe disease.<sup>6</sup>

Very few diseases on surgical floor have as vast a spectrum of clinical presentations as acute pancreatitis. Acute pancreatitis is considered as most terrible of all the calamities that occur in connection to the abdominal viscera. Suddenness of its onset, severe agony which accompanies it, and mortality attendant upon it, render it the most formidable of catastrophes.<sup>7</sup>

Most cases of acute pancreatitis are mild. Role of surgery in management of mild acute pancreatitis is minimum at best, as

majority of these patients can be managed conservatively. For cases of mild pancreatitis, surgery is necessary only to treat underlying mechanical factors such as gallstones or tumors at the papilla of Vater.<sup>8</sup> About 10 to 20 % cases of pancreatitis belong to the severe category. Severe acute pancreatitis (SAP), according to the Study Group for the Classification of Pancreatitis, is characterized by having three or more Ranson score criteria, eight or more points in the APACHE II classification, pancreatic complications or the presence of organ failure. Treatment of severe acute pancreatitis involves intensive care. Severe pancreatitis can produce a number of local as well as systemic complications. Local complications include acute fluid collection, pancreatic pseudocyst, pancreatic abscess, and necrosis.<sup>9,10</sup>

Clinically, infection of necrotic tissue is suspected when there is fever, leukocytosis, or unexpected deterioration, usually after the first week of illness. On contrast enhanced CT scan pancreatic necrosis is demonstrated by a loss of tissue perfusion. Presence of gas bubbles within the necrotic tissue on CT is evidence of infection. The diagnosis of infected necrosis is usually made by fine-needle aspiration of the necrotic area guided by either CT or ultrasonography, with Gram's staining and culture of the aspirate. Sterile pancreatic necrosis may be managed conservatively but presence of infected pancreatic necrosis, with signs of sepsis is an indication of surgery according to guidelines. Necrosectomy is the usual procedure. Prognosis of such patients is poor.<sup>11,12</sup>

Systemic complications (eg, shock, pleural effusion, hyperlipidemia, hypoglycemia, hyperglycemia, and diabetic ketoacidosis), clotting abnormalities, prolonged ileus, ARDS, renal failure, and multi organ system failure may develop in patients with severe acute pancreatitis.<sup>13</sup>

The aim of management in acute severe pancreatitis is to provide aggressive supportive care to decrease inflammation, to prevent and limit infection or super-infection, and to identify and treat the systemic complications. Main goal of treatment in ICU for severe acute pancreatitis is hemodynamic stabilization, with aggressive IV fluid resuscitation, early oxygenation and provision of ventilator support if needed to provide adequate oxygenation. Early intravascular volume resuscitation and sta-

ble haemodynamics improve microcirculation. Electrolyte and acid-base control can be as important as tight glycemic control. Adequate pain relief can be provided by performing a thoracic epidural catheterization. Broad spectrum antibiotics are also started. Intensive care multidisciplinary teamwork can decrease the mortality of severe acute pancreatitis from 30% to 10%.<sup>14</sup>

**Materials and Methods**

All patients age above 14years admitted in surgical ward in the department of general surgery and diagnosed as acute pancreatitis at K R Hospital, MMC & RI, Mysore are included in study. Prospective observational hospital based time bound study is conducted during the period of August 2013 to December 2014. The study population consisted of 40 cases, who fulfilled the diagnostic criteria, based on U.K Guidelines for the management for acute pancreatitis which includes the following,

- 1)Serum amylase more than 4 times the upper limit of normal.
- 2)Serum lipase more than 2 times the upper limit of normal.
- 3)Ultrasound or CT scan suggestive of acute pancreatitis.

On admission history was collected and thorough physical examination done. Data collection included age, sex, address and clinical presentation with respect to pain, vomiting gallstones, trauma and drugs was noted. History of previous episodes and comorbidities was noted.

**Observations and Results**

Out of 40 patients included in the study, 33 (82.5%) were males and 7 (17.5%) were females.

Sex	No. of patients	Percentage
Male	33	82.5
Female	7	17.5

Chi square (x<sup>2</sup>)=9.448 p Value=0.002(s)

**Table no.1: Sex Distribution**

In our study, majority of patients at the age group of 41 to 60 (45%). The mean age is 49.5. The youngest patient is 16 years and oldest patient is 76 years.

Age	No. of patients	Percentage
14-20	3	7.5%
21-30	6	15%
31-40	5	12.5%
41-50	11	27.5%
51-60	7	17.5%
61-70	6	15%
71-80	2	5%

Chi square (x<sup>2</sup>)=9.000 pValue=0.174(ns)

**Table no.2: Age Distribution**

In the study, biliary pancreatitis is the most common cause of pancreatitis (45%) followed by alcoholism (37.5%)

Etiology	No. of Patients	Percentage
Biliary	18	45%
Alcoholism	15	37.5%
Hyperlipidemia	1	2.5%
Traumatic	1	2.5%
Idiopathic	5	12.5%

Chi square (x<sup>2</sup>)=17.558 pValue=0.002(s)

**Table no.3: Etiology of acute pancreatitis**

In the study, biliary pancreatitis was the sole cause of acute pancreatitis in females (100%).

In males, alcoholism was the most common cause (45.45%), second commonest is biliary etiology (27.5%).

Etiology	Males (%)	Females (%)
Biliary	11(33.3%)	7(100%)
Alcoholism	15(45.45%)	0
Hyperlipidemia	1(3.03%)	0
Traumatic	1(3.03%)	0
Idiopathic	5(15.5%)	0

Chi square (x<sup>2</sup>)=10.37 pValue=0.035(s)

**Table No.4: Etiology and Sex distribution**

In this study, Diabetes Mellitus was most prevalent in study population and second is alcoholism.

Comorbidities	No of patients	%
Alcoholism	15	45.5%
Diabetes	27	67.5%
Obesity	11	27.5%

**TableNo.5:Comorbidities in pancreatitis**

In the study, 10 patients having severe outcome, 5 of them are associated with alcoholism, 4 of them with biliary pancreatitis and 1 due to trauma.

Etiology	No. of patients
Alcohol	5
Gall stones	4
Traumatic	1

**Table No.6: Etiology and Severity outcome**

**Discussion**

Alcohol abuse is a major cause of both acute and chronic pancreatitis in most developed countries.<sup>15</sup> However, as shown in present study, gallstones are the most common cause of pancreatitis in our patients. The exact incidence of acute pancreatitis in our population is not known. Plan of management, for a patient of pancreatitis depends largely on severity of the disease. During management, patient has to be observed and monitored for possible deterioration, and worsening of severity of disease. The treating physician has to be on guard, expecting local as well as systemic complications. While endoscopic or surgical intervention may be indicated in other cases, conservative treatment of mild acute pancreatitis is simple. The patient is kept NPO (i.e. nothing per oral), and adequate intravenous (IV) fluid hydration is provided. Analgesics, preferably NSAIDs are provided for pain relief. Most cases of mild pancreatitis settle within 48 -72 hours.<sup>16-17</sup>

There is evidence of improved outcome in acute pancreatitis with enteral nutrition, in terms of decreased rates of infection, decreased rate of surgical intervention, a reduced length of hospital stay, and reduced costs of treatment as compared to cost of total parenteral nutrition. However, total parenteral nutrition is deemed necessary for patients who cannot obtain enough calories via enteral nutrition or in whom enteral access cannot be maintained. Japanese, American as well as UK guidelines for management of pancreatitis favor the use of enteral nutrition over total parenteral nutrition in patients with severe acute pancreatitis whenever possible.<sup>17</sup>

Role of antibiotics in management of mild pancreatitis, according to most studies is insignificant. Some studies suggest that giving broad spectrum antibiotics with good penetration to pancreatic tissue can improve outcome in terms of decreased incidence of infected pancreatic necrosis, and decrease in other systemic complications.<sup>18-20</sup>

In patients with severe pancreatitis, and those with associated features of cholangitis or biliary obstruction, ERCP can be beneficial.<sup>21</sup> In patients with severe biliary pancreatitis, early intervention with ERCP reduces morbidity and mortality compared with delayed ERCP. In NIH consensus guidelines, early ERCP (Preferably within 72 hours of admission) is recommended for severe pancreatitis secondary to gallstones.<sup>22</sup>

Timing of cholecystectomy in patients with pancreatitis varies according to severity of the disease. One approach is to do cholecystectomy at same admission. Thus, patients with resolving mild acute pancreatitis can undergo laparoscopic cholecystectomy with intra-operative cholangiography at the same admission. If stones are encountered in common bile duct, laparoscopic or open common bile duct exploration can be done depending upon the expertise of surgeon. Any remaining bile duct stones can be dealt with by postoperative ERCP. Combined laparoscopic-endoscopic technique is an impressive emerging option, providing a single-step solution for cholelithiasis, and CBD stones.<sup>23,24</sup>

According to some trials, endoscopic sphincterotomy(ES) in severe gallstone pancreatitis is associated with minimal morbidity and readmission rates, and can be considered a reasonable alternative to an index cholecystectomy in patients with severe gallstone pancreatitis, and in high risk patients belonging to elderly age group.<sup>25</sup>

Another approach is to combine ERCP and ES for immediate biliary decompression and cholecystectomy is then done later. In mild disease, this is performed safely within 7 days, whereas in severe disease, especially in extended pancreatic necrosis, cholecystectomy can be done only 3 to 6 weeks after the resolution of symptoms. Patients with associated cholangitis, and obstructive jaundice especially benefit from this approach.<sup>26</sup>

The practice adapted in present study was to perform ERCP in all cases of gallstone-induced pancreatitis, and later laparoscopic cholecystectomy was performed after an interval of 6 weeks. It was observed that a significant number of patients with gallstone-pancreatitis had repeated admissions within the interval period of 6 weeks, despite having ERCP. This shows, it might be better to perform same admission cholecystectomy in these patients, as it would be safer and more cost-effective, as compared to going for interval cholecystectomy, with a chance of recurrence before 6 weeks.

Surgery, in patients with complications, either local or systemic is at best, to be avoided. If inevitable, timing of this surgery

should be delayed, to harvest better results. In present study, surgery for treating a complication was performed in only 5 % of the patients. One patient underwent cystogastrostomy for a huge pseudo-pancreatic cyst. Decision of necrosectomy was taken in two patients with necrotizing pancreatitis who had either evidence of infected necrosis on CT scan abdomen pelvis. This approach was based upon international guidelines for indications for surgery in pancreatitis.<sup>27</sup>

## CONCLUSIONS

Acute pancreatitis is an inflammatory process of pancreas with involvement of other regional tissues or remote organ systems. Predicting the prognosis of a patient at admission forms a very important in management. Several groups of investigation studies designed to determine clinical chemical or radiological parameters might be used to identify those patients destined to experience a severe illness. Our study includes total 40 patients, done during period of August 2013 to December 2014. Out of 40 patients included in study, predominantly were male 33 (82.5%) and 7 (17.5%) were females. Alcoholism(45.45%) is the most common etiology among Males followed by biliary etiology(33.30%). Biliary pancreatitis was sole cause of acute pancreatitis in females(100%). Majority of patients belong to age group of 41- 60 (45%) with a median age of 49.5 years. Hyperlipidemia(2.5%) and traumatic (2.5%) pancreatitis was found in one patient each and where no cause was found labeled as idiopathic(12.5%). Diabetes mellitus(67.5%) was most common associated comorbidity followed by alcoholism(45%) and obesity(27.5%).

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