ORIGINAL ARTICLE

Morbidity and Mortality in Acute Pancreatitis

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ABSTRACT

Objective — *To determine the morbidity, mortality and causes of acute pancreatitis in patients presenting to a tertiary care hospital.*

Study design — *Descriptive case series.*

Place & Duration of study — *Department of Surgery Ward 3 Jinnah Postgraduate Medical Centre Karachi, from October 2013 to October 2015.*

Methodology — *Patients diagnosed as having acute pancreatitis were included in the study. Laboratory and radiological investigation were carried out. Local, systemic complications, mortality and causes of acute pancreatitis were noted. Patients were followed up to 3 months to record the late complication of acute pancreatitis.*

Results — *A total of 220 patients of acute pancreatitis were included. Average age of patients was 43 year. There were 150 (68.18%) female and 70 (31.82%) male patients. Of the total 176 (80%) patients had acute mild pancreatitis, 24 (10.90%) acute moderate pancreatitis and 20 (9.10%) acute severe pancreatitis. Overall mortality was 3.64% (n=8). Mortality in acute moderate pancreatitis was 8.33% and in acute severe pancreatitis 30%. Local and systemic complications occurred in 18.33% patients. This included ARDS (20%), pleural effusion (20%), hypocalcaemia (20%), shock (18.8%), neurological (13.63%) and renal failure (13.63%). In 85% cases cause of acute pancreatitis was cholelithiasis.*

Conclusions — *Overall mortality in acute pancreatitis was 3.64. It was more in cases of acute severe pancreatitis. The major cause of acute pancreatitis was cholelithiasis.*

Key words — *Acute pancreatitis, Mortality, Morbidity.*

INTRODUCTION:

Acute pancreatitis is a reversible inflammatory process of pancreas. Mild acute pancreatitis is the most common variety. It usually resolves in a week time. Moderately severe pancreatitis is defined as presence of transient organ failure, local or systemic complications and severe acute pancreatitis is defined as persistent organ failure or organ failure of more than 48 hours duration.[1] Risk factors for acute pancreatitis are choledocholithiasis, alcoholism, pancreatic divisum, sphincter of Oddi dysfunction etc.[2]

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The hallmark symptoms and signs of acute pancreatitis is upper abdominal pain, vomiting, hypotension, severe abdominal tenderness and abdominal distension. Diagnosis can be made by elevated amylase, lipase, trypsinogen levels and its severity can be predicted by raised C-reactive protein, interleukin 6, interleukin 8, phospholipase A2 and procalcitonin.[2]

Acute severe pancreatitis is associated with a high morbidity and mortality. The rate of mortality is 5%-40% with high degree of necrosis.[3] Serious complication occurs in patient who initially develop 30% necrosis.[4] Complications include abscess formation, pseudo cyst etc.[5] Severe inflammation can lead to intra abdominal hypertension and abdominal compartment syndrome.[6] Outcome of acute pancreatitis varies in different centers due to the availability of intensive care facilities and advance

technologies and expertise. The objective of this study was to find out the common causes and outcome of patients with acute pancreatitis.

METHODOLOGY:

This was a descriptive case series conducted in the Surgical Unit I, Ward 3 Jinnah Postgraduate Medical Centre Karachi, from October 2013 to October 2015. All patients above 12 year of age diagnosed as cases of acute pancreatitis on clinical examination and supported by high levels of serum amylase and serum lipase, were included in the study. Intravenous fluid resuscitation, antibiotics and analgesia were given to all. Monitoring of vital signs was done. Complete blood count, blood urea nitrogen, random blood sugar, serum calcium, liver function tests, arterial blood gases, chest x-ray ultrasound abdomen were done. Ranson criteria and APACHE scores were recorded.

Cardiovascular dysfunction was defined as hypotension that required vasoactive medications, renal dysfunction as serum creatinine level > 2mg/dl and respiratory dysfunction as need for mechanical ventilation or Pa02 < 60mmHg. Infected pancreatic necrosis (abscess) was defined as presence of microorganism in cultures. Acute mild pancreatitis was labeled when no organ failure, local or systemic complications were noted. In cases of pancreatic necrosis when more than 50% of pancreas was involved and if the patient deteriorated, exploratory laparotomy was performed for necrosectomy and washout of the lesser sac. Patient of severe pancreatitis were shifted to intensive care. Patients who were diagnosed as having pancreatic abscess were subjected to ultrasound guided drainage and drain placement. If loculated collection failed to drained, laparotomy was performed.

All the patients who had cholelithiasis underwent cholecystectomy after three months. Data was entered using SPSS version 16.

RESULTS:

Among 220 patients who were included in the study 70 (31.82%) were males and 150 (68.18%) females. Mean age was 43. year. Of the total 176 (80%) patients presented with acute mild pancreatitis, 24 (10.90%) with acute moderate pancreatitis and 20 (9.10%) with acute severe necrotizing pancreatitis. Eight (3.64%) patients of acute pancreatitis died. All patients of acute mild pancreatitis recovered uneventfully. Two patients of acute moderate pancreatitis and six of acute severe pancreatitis died. In 93.63% patients there was cholelithiasis and history of alcoholism. In 6.34% of acute pancreatitis rare causes were noted (table-I). All patients of acute severe pancreatitis developed complications. These are given in table II.

DISCUSSION:

Acute pancreatitis is a reversible inflammatory process of pancreas. It is life threatening disease. Mean age in this study was 43 year and females (68.18%) were predominantly involved because major cause of acute pancreatitis was cholelithiasis. In other study conducted in Karachi males were involved more (54.3%) in acute pancreatitis and mean age was 51.6 year.[3] Most of the patients in this study were of acute mild pancreatitis (80%) and there was no complication noted in this sub group. Mortality rate was high in acute severe pancreatitis as reported in literature with overall mortality rate ranging from 10-30%.[2]

Table I: Aetiology of Acute Pancreatitis

Causes of Acute Pancreatitis	Number of Patients (n)	Percentage
Cholelithiasis	187	85%
Alcoholism	19	8.63%
Hyperparathyroidism and Hypocalcemia	3	1.36%
Drug Induced	3	1.36%
Idiopathic	3	1.36%
Periampullary Tumor	2	0.90%
Congenital Anomalies	1	0.45%
Traumatic (ERCP)	1	0.45%
Viral Infections (Mumps)	1	0.45%
Total	**220**	

Table II: Complications in Acute Pancreatitis		
Systemic Complication	**Number of Patients (n)**	**Percentage**
ARDS	44	20%
Hypocalcemia	44	20%
Pleural Effusion	44	20%
Shock	40	18.18%
Neurological	30	13.63%
Renal Failure	30	13.63%
Diabetes Mellitus	22	10.00%
Acute local fluid collection	20	9.09%
Sterile Pancreatic Necrosis	20	9.09%
Pancreatic Ascites	20	9.09%
Infected Pancreatic Necrosis	10	4.54%
Pancreatic Abscess	10	4.54%
Portal and Splenic Vein Thrombosis	5	2.27%
Hyperlipidemia	4	1.81%
Ileus	40	18.18%
DIC	2	0.90%
Arthralgia	2	0.90%
Subcutaneous Fat Necrosis	1	0.45%
Total	**220**	

Serious complications can develop in patients who had more than 30% necrosis with 92% morbidity and 17% mortality.[4] Similar results were found in this study. All patients of acute severe pancreatitis who expired had pancreatic necrosis of more than 30% and in this study 99% patients of acute severe pancreatitis developed complications. Persistent organ failure is the key determinant of morbidity and mortality in acute pancreatitis. In a study conducted in India organ failure was found in 35.2% patients.[7] Renal failure predict mortality in acute severe pancreatitis. Fluid resuscitation alone cannot prevent necrosis but early fluid resuscitation is associated with reduced SIRS, organ failure and in hospital mortality. Early multi system failure that supervenes in the first week is typically associated with sterile necrotizing pancreatitis. Clinical data is available to support the practice of the debridement of sterile necrosis to prevent or to control the multisystem organ failure. Besides the intensive care support, urgent endoscopic sphincterotomy for impacted stones, antibiotic prophylaxis and early jejunal feeding have been specifically developed for multi organ failure, to obviate the need of surgical drainage and to improve the survival.[8]

In this study intensive care support was provided and extraction of stones was done. Thus many patients survived with sterile pancreatic necrosis. Local complications like fluid collection around pancreas were noted in 9.09% and sterile pancreatic necrosis in 9.09%. These were usually resolved spontaneously. Serious local complications were infected pancreatic necrosis in 4.45% and abscess formation in 4.45% cases. Percutaneous drainage of abscess was done with good prognosis. In five patients open debridement was done. In another study pancreatic necrosis with abscess was found in 3.95% cases.[7] Mortality rate of pancreatic abscess is generally less than infected pancreatic necrosis and largely related to sepsis and multi organ failure.[9] The rate of mortality reaches to 100% if intervention and drainage are not undertaken. In this study cystogastrostomy was done in all patients with pseudocyst. Mortality in pancreatic abscess is reported as 30%.[10] Almost the same findings were

noted in the index study.

Acute pancreatitis is sometimes associated with tetany and hypocalcaemia.[11] Hypocalcaemia is considered as poor prognostic marker. In acute severe pancreatitis hypocalcaemia is more frequent noted.[12] Neurological complication are very rare.[11] DIC may occur in acute pancreatitis due to circulating pancreatic enzymes particularly trypsin or secondary to vascular injury.[13] It was rarely noted in this study.

In acute severe pancreatitis and with associated pancreatic necrosis, splanchnic vein thrombosis is relatively common observation and thrombosis with ascites have poor prognosis. In this study portal vein thrombosis was found in 2.27% as compared to other study where it was 18.6%.[14] Pancreatic panniculitis is a rare disease in which necrosis of fat occur and clinically manifest as tender nodules over body. In this study one patient developed the same as reported in literature.[15] In this study cholelithisis (85%) and alcoholism were common causes of acute pancreatitis. Other causes of acute pancreatitis were rare.

CONCLUSIONS:

Acute severe pancreatitis is a serious illness with a high probability of complications and significant mortality. The most common cause of acute pancreatitis in this study was cholelithiasis. Early diagnosis and surgical intervention when indicated, can reduce the morbidity and mortality of acute pancreatitis.

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