Acute Pancreatitis – A Clinical Profile

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Abstract

Background: To study etiology and complications of acute pancreatitis

Methods: In this descriptive study, 60 patients with abdominal pain and a serum amylase level of three times the normal value or higher were included. Severity of disease was assessed using Ranson’s criteria. Etiological factors, complications and management options were studied

Results: Age ranged from 15 years to 75 years. Gallstone disease accounted for more than 85% of cases of acute pancreatitis. In one third of these patients, acute pancreatitis was the first presentation of gall stones. Majority of these patients had mild pancreatitis.

Conclusion: Gall stone induced pancreatitis is the commonest cause of acute pancreatitis.

Key Words: Gallstones, Acute Pancreatitis, Ranson’s Criteria

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.

Approximately 2000 patients per year die from complications related to acute pancreatitis. Gallstones and alcohol are the two most common causes of acute pancreatitis in western countries accounting for 80% of cases. 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.

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 Computer Tomography Severity Index. C-reactive protein, interleukin-6 and trypsinogen peptide are also helpful in diagnosis and predicting prognosis.

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.

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.

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. 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.
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.12

Systemic complications (e.g., 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.13

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 stable 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%.14

Patients and Methods

This study was conducted in Department of Surgery, SU-II Benazir Bhutto Hospital, from 1st March 2011 till 28th February 2012. It included the patients who presented with acute pancreatitis, presenting either through the OPD or emergency department, having abdominal pain and serum amylase levels three or higher times the normal value. These patients were evaluated by history, and clinical examination. Severity was judged by using Ranson’s criteria. More specific investigations like serum lipase estimation were also done. USG abdomen & pelvis was done in all patients to evaluate for the presence of gall stones. CT scan was done after 72 hours of admission, in patients who had severe pancreatitis, or who were not clinically stable. ERCP was done in patients with gall stones and were jaundiced at the time of admission. Patients with evidence of infected pancreatic necrosis were operated for necrosectomy through a midline laparotomy.

Results

A total of 60 patients were studied, out of which 24 (40%) were male and 36 (60%) were female, with a male-female ratio of 2:3. The age of patients ranged from 15 years to 75 years. Patients stayed in hospital for a period ranging from 1 day to 122 days, average hospital stay being 12.15 days. According to Ranson’s criteria, majority (90%) had mild acute pancreatitis, while 6 patients (10%) had severe pancreatitis. Majority of severe pancreatitis patients (4 out of 6) deteriorated and they were managed in ICU. Out of these patients, 3 patients were obese. Gall stones (85%) was the commonest etiology (Table 1). In 19.6 % (10/51) of patients with gall stones, acute pancreatitis was the first manifestation of gallstones.

Most of the patients were managed conservatively, only three patients (5%) underwent major surgery (i.e. necrosectomy done for 2 patients and cysto-gastrostomy, in one patient). Incidence of complications was 23.33 % with prolonged ileus being commonest complication (Table 2). One patient died, showing 16.66 % mortality for severe acute pancreatitis; overall mortality was 1.66%.

Table 1. Acute Pancreatitis– Etiology

<table>
<thead>
<tr>
<th>Causative Factor</th>
<th>No (%)</th>
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<tbody>
<tr>
<td>Gall stones</td>
<td>51(85)</td>
</tr>
<tr>
<td>Alcohol Induced</td>
<td>3(5)</td>
</tr>
<tr>
<td>Post ERCP</td>
<td>2(3.33)</td>
</tr>
<tr>
<td>Viral infection</td>
<td>1(1.66)</td>
</tr>
<tr>
<td>Choledochal Cyst</td>
<td>1(1.66)</td>
</tr>
<tr>
<td>Idiopathic</td>
<td>2(3.33)</td>
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</tbody>
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Table 2. Acute Pancreatitis– Complications

<table>
<thead>
<tr>
<th>Complication</th>
<th>No(%)</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prolonged Ileus</td>
<td>6(10)</td>
<td>10%</td>
</tr>
<tr>
<td>Pancreatic Necrosis</td>
<td>3(5)</td>
<td>5%</td>
</tr>
<tr>
<td>Pleural Effusion</td>
<td>2(3.33)</td>
<td>3.33%</td>
</tr>
<tr>
<td>ARDS*</td>
<td>2(3.33)</td>
<td>3.33%</td>
</tr>
<tr>
<td>Pancreatic Pseudocyst</td>
<td>1(1.66)</td>
<td>1.66%</td>
</tr>
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*Acute Respiratory Distress Syndrome
Discussion

Alcohol abuse is a major cause of both acute and chronic pancreatitis in most developed countries. 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. However it can be seen that this incidence is dramatically rising, as in surgical unit II, the total number of patients admitted for acute pancreatitis in year 2011 was 55. This is in marked contrast to a similar study, conducted in same department, from 1997 to 2000, which showed the number of admissions for acute pancreatitis was 24 patients per annum on average. In present study, 6 patients had severe pancreatitis. 3 out of these patients were obese, and all three of these patients required intensive care. One of these patients died. It reflects that combination of obesity with pancreatitis is an ominous one, and is clinically challenging to manage.

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.

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.

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.

In present study ERCP was performed in all cases of gallstone-induced pancreatitis. In patients with severe pancreatitis, and those with associated features of cholangitis or biliary obstruction, ERCP can be beneficial. 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.

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.

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.

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.

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.27

Conclusion
Guidelines, for management of asymptomatic gall stones need to be established, as it can lead to acute presentation, like acute pancreatitis.

References