

Research Article

The outcome of management of acute pancreatitis

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Received: 26 May 2016

Accepted: 15 June 2016

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ABSTRACT

Background: Acute pancreatitis is a potentially life threatening disease. The initial management of patients with pancreatitis focuses on establishing the diagnosis, estimating its severity, addressing the major symptoms (i.e., pain, nausea, vomiting, and hypovolemia), and limiting its progression. Therefore, the present study has been undertaken to record the outcome of management of acute pancreatitis.

Methods: The study population consisted of 40 cases of acute pancreatitis that fulfilled the diagnostic criteria. For assessing severity, Ransons and APACHE 2 systems were used. For Patients with <2 Ransons signs on admission pancreatitis immediate ERCP with ES followed by cholecystectomy. For Patients >2 Ransons signs on admission pancreatitis management was decided after 48 hrs of conservative management. Chi-square tests were employed to find out the difference between groups of frequencies obtained for the specific statements. A P value of less than 0.05 was considered statistically significant.

Results: Out of 40 patients, Males were (55%) and (45%) were females. Majority of patients were belonging to the age group of 41-60 (42.5%) with a median age of 37 yrs in our study 14 patients had <2 Ransons signs. Out of which 9 underwent ERCP+ES+open cholecystectomy and 5 underwent ERCP+ES+lap cholecystectomy. Out of 8 cases of patients with more than 2 ransons signs conservative management was followed for 48 hours. 4 of them, upon subsidence of symptoms underwent open cholecystectomy.

Conclusions: Predicting the prognosis of a patient with acute pancreatitis at admission forms a very important strategy in management of acute pancreatitis, which will enable to practice guidelines for standardization of management of the patient which will in turn translate into improved outcomes.

Keywords: Acute pancreatitis, Alcoholism induced pancreatitis, Traumatic pancreatitis, Biliary etiology

INTRODUCTION

Acute pancreatitis is a potentially life threatening disease. The spectrum of severity of the illness ranges from mild self-limiting disease to a highly fatal severe necrotizing pancreatitis.^{1,2} Despite intensive research and improved patient care, overall mortality still remains high, reaching up to 30-40% in cases with infected pancreatic necrosis.² While mild cases are often successfully treated with conservative measures, such as fasting and aggressive intravenous fluid rehydration, severe cases may require admission to the intensive care unit or even surgery to deal with complications of the disease process.

Although gallstone migration clearly is related to the genesis of acute pancreatitis, the explanation of how the migrating stone triggers the premature activation of the zymogens that initiate the autodigestion of the pancreas is not clear but explanations given are that pancreatic juice contains several inactive zymogens that normally undergo activation only after entering the duodenum.

There, trypsinogen is transformed into trypsin by the brush-border membrane enzyme enterokinase. Trypsin then activates the other pancreatic zymogens, including proelastase, procarboxypeptidase, and phospholipase.³ During episodes of pancreatitis, activated proteolytic

enzymes, such as elastase and trypsin, are found in pancreatic juice and within the gland itself. These enzymes are thought to play a role in the development of the local and systemic manifestations of pancreatitis. An acute attack of pancreatitis evolves in two, somewhat overlapping, phases. The initial phase, which lasts for 1 to 2 weeks, involves an acute inflammatory and autodigestive process that takes place within and around the pancreas.⁴ Later phase of pancreatitis is primarily characterized by the development of local complications that are the result of necrosis, infection, and pancreatic duct rupture.

The initial management of patients with pancreatitis focuses on establishing the diagnosis, estimating its severity, addressing the major symptoms (i.e., pain, nausea, vomiting, and hypovolemia), and limiting its progression. The pain of pancreatitis may be severe and difficult to control. Most patients require narcotic medications.⁵

Aggressive fluid and electrolyte repletion is the most important element in the initial management of pancreatitis. Fluid losses can be enormous and can lead to marked hemoconcentration as well as hypovolemia. Total fluid losses may be so great that they lead to hypovolemia and hypoperfusion, and as a result, a metabolic acidosis can develop. The measured values for serum albumin may be even further depressed as fluid losses are treated with albumin-free crystalloid solutions. Ionized calcium levels may also be depressed, and tetany as well as carpopedal spasm can occur. Under those circumstances, aggressive calcium repletion is indicated.⁶

Hypoxemia can also occur as a result of the combined effects of increased intrapulmonary shunting and a pancreatitis-associated lung injury that closely resembles that seen in other forms of ARDS. Treatment requires meticulous replacement of fluid and electrolyte losses. Measurement of central filling pressures, using a Swan-Ganz or central venous pressure catheter, can be helpful in guiding fluid management, particularly when hypovolemia is combined with lung injury.⁷

To increase patient comfort, nasogastric decompression may be needed, although the institution of nasogastric drainage has not been shown to alter the eventual outcome of an attack. Several prospective and randomized trials have shown that prophylactic antibiotics can favourably affect the course of severe pancreatitis, although a recent double-blind study detected no benefit with respect to the risk for developing infected pancreatic necrosis.

In patients with severe pancreatitis, benefit has been observed with regimens that included imipenem alone, imipenem with cilastatin, and cefuroxime. Although these recent studies argue strongly for administration of prophylactic antibiotics to patients with severe pancreatitis, is still controversial.⁸ Several investigative

groups have recently demonstrated that most patients with pancreatitis, including those with severe pancreatitis, can actually tolerate small amounts of enterally administered nutrients. They have shown that those nutrients can be tolerated if given either into the stomach (through a nasogastric tube) or into the small intestine (through a nasojejunal tube). Rarely TPN is required.

Other attempts to reduce gastrointestinal or pancreatic secretion (i.e., H₂ blockers, proton pump inhibitors, antacids, atropine, somatostatin, glucagon, and calcitonin) have not been shown to be beneficial in the treatment of pancreatitis.⁹ Though, there are various ways of management, there was no report on the outcome of the management of acute pancreatitis. Therefore, the present study has been undertaken to record the outcome of management of acute pancreatitis.

METHODS

This study is a prospective observational hospital based time bound study performed after the institutional ethical clearance. All the patients admitted in the surgical ward of the department of General surgery who were diagnosed for acute pancreatitis and above the age of 14 years were included after their written consent. Acute episodes in patients with chronic pancreatitis, other comorbid conditions like renal failure, cardiac failure, generalized debility and other factors, which adversely affect recovery from pancreatitis and patients who underwent initial treatment in another centre were excluded from study.

The study population consisted of 40 cases of acute pancreatitis that fulfilled the diagnostic criteria. The diagnostic criteria included at least one of the three features. They are serum amylase more than 4 times the upper limit of normal, serum Lipase more than 2 times the upper limit of normal and ultrasound or CT scan suggestive of acute pancreatitis. This was based on the U. K. Guidelines for the management of acute pancreatitis.

On admission history was collected and thorough physical examination was done. Data collection on admission included age, sex, address and clinical presentation with respect to pain vomiting, gallstones trauma and drugs was noted. History of previous episodes and co-morbidities was noted. For assessing severity, Ransons and APACHE 2 systems were used.

For Patients with <2 Ransons signs on admission pancreatitis immediate ERCP with ES followed by cholecystectomy. For Patients >2 Ransons signs on admission pancreatitis management was decided after 48 hrs of conservative management. If symptoms were subsiding cholecystectomy was performed after subsidence of acute episode. If symptoms worsened ERCP with ES was performed after which patient was subjected to cholecystectomy after acute episode had subsided.

Statistical analysis

The Descriptive procedure displays univariate summary statistics for several variables in a single table and calculates standardized values. Normally distributed continuous variables were expressed as mean (range) and non-normally distributed variables were expressed as median. Chi-square tests were employed to find out the difference between groups of frequencies obtained for the specific statements. A P value of less than 0.05 was considered statistically significant.

RESULTS

In the study out of 13 patients having severe outcome 6 of them are associated with Alcoholism and 7 patient associated with biliary pancreatitis (Table 1). In the study out of 15 patients having severe outcome 6 of them are associated with Alcoholism and 9 patient associated with biliary pancreatitis (Table 2).

Table 1: Number of patients according to etiology and severity of outcome as per ransons score.

Etiology and Severity	No. of patients with more than 2 Ransons signs
Alcohol	6
Gallstones	7
Traumatic	0

The mean hospital stay was 4.33 days for Mild Pancreatitis and for severe pancreatitis it was average 5.15 days (Table 3). Among the study population 6 (15%) patient died. Out of 6 patients 2 were due to alcohol induced pancreatitis with average duration of stay of 1.5 days and 4 cases due to biliary pancreatitis with average duration of stay of 3.75 days (Table 4).

Table 2: Number of patients according to etiology and severity of outcome as per APACHE 2.

Etiology and Severity	No. of patients more than 4 signs
Alcohol	6
Gallstones	9
Traumatic	0

Table 3: Average length of hospital stay in days as per the Ranson score severity.

Severity	No of patients	Mean Hospital Days
Mild <2 ranson signs	27	4.33
Severe >2 ranson signs	13	5.15

Out of 22 patients 14 patients had <2 Ransons signs. Out of which 9 underwent ERCP+ES+open cholecystectomy and 5 underwent ERCP+ES+lapp cholecystectomy.

Patients who did not undergo ERCP+ES were subjected to bile duct exploration as and when indicated-i.e. all case of severe biliary pancreatitis. Out of 8 cases of patients with more than 2 ransons signs conservative management was followed for 48 hours. 4 of them, upon subsidence of symptoms underwent open cholecystectomy, While 4 of them expired due to severe metabolic changes and sepsis (Table 5).

Table 4: Cause of mortality and average duration among study population.

Cause	Deaths	Average Duration
Alcoholic	2	1.5
Biliary	4	3.75

Table 5: Management of patients depending on the Ranson score severity.

Severity	Open cholecystectomy	Lap cholecystectomy
Mild <2 ranson signs	9	5
Severe >2 ranson signs	4	0

DISCUSSION

Pancreatitis is a contributing factor in an additional 4000 deaths annually and inflicts a heavy economic burden, accounting for more than \$2 billion in health costs annually in the United States.¹⁰ Unpredictable natural history and diagnostic delay often leads to belated and ineffective interventions in these cases. Being able to predict the prognosis of a patient with acute pancreatitis at admission forms a very important strategy as that this will help us to practice guidelines for standardization of management of the patient, viz., the use of antibiotics, timings of computed tomography scans, use of ERCP and operative intervention. This will in turn yield improved outcomes.

As extent of necrosis determines organ failure, it is important to tackle this complication at earliest.¹¹ The role of surgical intervention in the management of patients with sterile pancreatic or peripancreatic necrosis has been the subject of considerable controversy.¹² In a patient with necrotizing biliary AP, in order to prevent infection, cholecystectomy is to be deferred until active inflammation subsides and fluid collections resolve or stabilize. The presence of asymptomatic pseudocysts and pancreatic and/or extrapancreatic necrosis do not warrant intervention, regardless of size, location, and/or extension.¹³

In stable patients with infected necrosis, surgical, radiologic, and/or endoscopic drainage should be delayed preferably for more than 4 weeks to allow liquefaction of the contents and the development of a fibrous wall

around the necrosis (walled-off necrosis). In symptomatic patients with infected necrosis, minimally invasive methods of necrosectomy are preferred to open necrosectomy.¹³

The conventional approach to managing infected necrosis involves laparotomy and surgical debridement of the infected, devitalized tissue. Repeated operations and debridement may be needed in symptomatic patients. The goal of operation in these patients with infected necrosis is to remove as much as possible of the infected, necrotic tissue and to provide drainage for the remaining viable exocrine tissue.

Out of 40 patients included in study, predominantly were Male 22(55. %) and 18 (45%) were females. Majority of patients were belonging to the age group of 41-60 (42.5%) with a median age of 37 yrs. Most common etiology for Acute pancreatitis was Biliary (55%) followed by Alcoholism (32.5%), Hyperlipidaemia (2.5%) and Traumatic (2.5%) pancreatitis was found in one patient each and where no cause was found was labelled as Idiopathic (7.5%). In our study biliary pancreatitis was the cause of acute pancreatitis in Females 59.09%.

In Males, Alcoholism induced pancreatitis 50% was most common, second commonest was Biliary etiology 40.9%. In the study diabetes mellitus was most prevalent in the study population 62.5% and. Obesity was found in 37.5% patients. In our study biliary pancreatitis was most common cause of death among study population 66.67% and alcoholism was second most common in 33.33% patients. In our study 14 patients had <2 Ransons signs.

Out of which 9 underwent ERCP+ES+open cholecystectomy and 5 underwent ERCP+ES+lap cholecystectomy. Out of 8 cases of patients with more than 2 ransons signs conservative management was followed for 48 hrs. 4 of them, upon subsidence of symptoms underwent open cholecystectomy, while 4 of them expired due to severe metabolic changes and sepsis.

CONCLUSION

Acute pancreatitis is an acute inflammatory process of the pancreas with variable involvement of other regional tissues or remote organ systems. Predicting the prognosis of a patient with acute pancreatitis at admission forms a very important strategy in management of Acute pancreatitis, considering this it enable to practice guidelines for standardization of management of the patient which will in turn translate into improved outcomes.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Nagarjuna TR, Prasad HL. The outcome of management of acute pancreatitis. *Int J Res Med Sci* 2016;4:2998-3001.