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Original research article

To learn more about the aetiology and complications of acute pancreatitis, as well as to determine the clinical profile of acute pancreatitis

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Abstract

Aim: The present study was aimed to study etiology and complications of acute pancreatitis, to assess the clinical profile of acute pancreatitis.

Material and Methods: The study was a cross sectional study which was carried in the Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa,Bihar, India. for 1 year. Total 100 patients who were diagnosed for acute pancreatitis were include in this study and data collection on admission included age, sex, address and clinical presentation with respect to pain vomiting, gallstones trauma and drugs was noted.

Results: Out of 100 patients, 58 were males and 42 were females. Majority of patients at the age group of 30-40 (42%) and followed by 40-50 years (33%). All the patients (100%) presented with pain abdomen, 84% of them presented with nausea/vomiting, 45% of them presented with fever and 28 % of them with jaundice. 46% patient's biliary pancreatitis was found to be the most common cause for acute pancreatitis. Alcoholism was the second most common cause (35%). Hyperlipidemia (4%) and traumatic (4%) pancreatitis was found in 4 patient each. Patients where no cause was found were labelled as idiopathic (11%). In males alcoholism induced pancreatitis was most common with a second commonest as biliary etiology. Diabetes mellitus was most prevalent in the study population 59%. Obesity as defined by the current definition was prevalent in 41%.

Conclusion: Acute pancreatitis is one of the leading causes for increase morbidity and mortality to society. Cinical assessment along with lab markers correlated well with the mortality and morbidity.

Keywords: acute pancreatitis, clinical, morbidity, mortality.

Introduction

Acute pancreatitis is an acute inflammatory process of the pancreas with variable involvement of regional tissues and remote organ systems.[1] The average mortality rate in severe acute pancreatitis approaches 2-10%.[2] The American College of Gastroenterology (ACG) practice guidelines provide acceptable terminology for the classification of Acute Pancreatitis and its complications.[3] Acute Pancreatitis is broadly classified (the Atlanta classification) as mild and severe: Mild acute pancreatitis is often referred to as interstitial pancreatitis, based on its radiographic appearance. Severe acute pancreatitis implies the presence of organ failure, local complications, or pancreatic necrosis. Interstitial pancreatitis implies preservation of pancreatic blood supply; necrosis suggests the disruption of pancreatic blood supply with resulting ischemia. Most cases of acute pancreatitis fall into the mild category, with favorable 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.[4] With acute pancreatitis the inflammation comes on quickly over a few

hours and usually goes away, leaving no permanently damage. However, it can be fatal if complication occurs. There are many causes of acute pancreatitis, but the mechanisms by which these conditions trigger pancreatic inflammation have not been identified. Gallstone and alcohol abuses are the main cases of acute pancreatitis. The severity of Acute Pancreatitis can be predicted based upon clinically laboratory and radiological risk factors various severity grading system and serum markers. Some of this can be perform on admission to assist in triage of patient while others can be obtained during 1st 48 -72 hours or later. Severe acute pancreatitis is characterized by a short course, progressive MODS, early hypoxemia, increased incidence of necrosis, infection, and abdominal compartment syndrome (ACS).[5] Multiorgan dysfunction syndrome, the extent of pancreatic necrosis, infection, and sepsis are the major determinants of mortality in Acute Pancreatitis.[6] Pancreatic necrosis is considered as a potential risk for infection, which represents the primary cause of late mortality. Occurrence of acute respiratory (ARF), cardiovascular (CVF), and renal failures (RF) can predict the fatal outcome in SAP.[7] Early accurate diagnosis is very important for it's management. Symptoms of acute pancreatitis vary considerably. For this reason the clinician must carefully evaluate information derived from other sources that supplement the history and physical examination including laboratory tests, imaging studies before arriving at a correct diagnosis of acute pancreatitis. If the cause of the attack can be eliminated there will be no further attacks and the pancreas will return to normal in terms of its morphology and function.[8] Management of acute pancreatitis has changed significantly over the past years. Early management is nonsurgical, solely supportive and patients with infected necrosis with worsening sepsis need intervention. Early intensive care has definitely improved the outcome of patients.[9]

Material and methods

The study was a cross sectional study which was carried in the Department of General Surgery, Lord Buddha Koshi Medical College and Hospital, Saharsa,Bihar, India. For 1 year. after taking the approval of the protocol review committee and institutional ethics committee.

Inclusion criteria

- All the patients who were diagnosed for acute pancreatitis

Exclusion criteria

- Patients with chronic pancreatitis
- Renal failure
- Cardiac failure
- Generalized debility

Methodology

A total of 100 cases of acute pancreatitis that met the diagnosis criteria were included in the report. At least one of the three characteristics was used in the diagnostic criterion. They are serum amylase levels that are more than four times the upper limit of average, serum Lipase levels that are more than two times the upper limit of normal, and ultrasound or CT scan results that indicate acute pancreatitis. This was focused on the U.K. Recommendations for Acute Pancreatitis Treatment. On diagnosis, the patient's medical history was gathered, and a detailed physical examination was performed. On admission, age, sex, address, and clinical appearance in terms of pain, vomiting, gallstones, injuries, and medications were all registered.

Statistical analysis

The collected data was inserted into a spreadsheet application (Microsoft Excel 2010) and then exported to the SPSS version 20 data editor website (SPSS Inc., Chicago, Illinois, USA). Percentages, means, and standard deviations were computed as part of descriptive statistics. The chi-square test was used test in this research. The significance level was set at $p<0.05$.

Results

Out of 100 patients included in study, 56 were males and 44 were females. In our study, majority of patients at the age group of 30-40 (42%) and followed by 40-50 years (33%). The youngest patient was 17 year and the oldest Patient was 69 years (Table 1). Majority of the patients (98%) presented with pain abdomen, 81% of them presented with nausea/vomiting, 43% of them presented with fever and 23% of them with jaundice (Table 2).

Table 1: Distribution of Age and sex of acute pancreatitis patients

Age group in years	Male=58	Female=44	Total =100	%	P value
Below 20	2	1	3	3%	>0.05 NS
20-30	8	4	12	12%	
30-40	24	18	42	42%	
40-50	17	15	32	32%	
50-60	6	3	9	9%	
Above 60	1	1	2	2%	

Test applied: chi-square test

Table 2: Symptomatology of acute pancreatitis patients

Symptoms	No of patients	%
Pain abdomen	98	98%
Fever	43	43%
Vomiting	81	81%
Jaundice	23	23%

In this study, 47% biliary pancreatitis was found to be the most common cause for acute pancreatitis. Alcoholism was the second most common cause (35%). Hyperlipidemia (3%) and traumatic (4%) pancreatitis was found in 4 patient each. Patients where no cause was found were labelled as idiopathic (11%). In males alcoholism induced pancreatitis was most common with a second commonest as biliary etiology (Table 3).

Table 3: Etiology and sex distribution of acute pancreatitis

Etiology	Males=58	Females=42	Total =100	%	P value
Biliary	23	24	47	47%	0.06 NS
Alcoholism	28	7	35	35%	
Hyperlipidaemia	0	3	3	3%	
Traumatic	4	0	4	4%	
Idiopathic	3	8	11	11%	

Test applied: chi-square test

Diabetes mellitus was most prevalent in the study population 57%. Obesity as defined by the current definition was prevalent in 43% (Table 4).

Table 4: Co-morbidities in acute pancreatitis

Co-morbidities	No of patients	%
Diabetes mellitus	57	57%
Obesity	43	43%

Discussion

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 us to practice guidelines for standardization of management of the patient which will in turn translate into improved outcomes.[10] The present showed biliary pancreatitis (47%) as the most common cause for acute pancreatitis. The second most common cause was found to be alcoholism (35%). The other causes being hyperlipidaemia (3%), traumatic pancreatitis (4%) and 11% of patients did not show any symptoms and were labelled as idiopathic.

In biliary pancreatitis usually occurs in older adults, often have a history of cholelithiasis or intermittent, postprandial right upper-quadrant pain. Patients with acute pancreatitis present with mild to severe epigastric pain, with radiation to the back. Classically, the pain is characterized as constant, dull and boring, and is worse when the patient is supine.[11] The discomfort may lessen when the patient assumes a sitting or foetal position. A heavy meal or drinking binge often triggers the pain. In the present study all the patients (98%) presented with pain abdomen, 81% of them presented with nausea/vomiting, 43% of them presented with fever and 23 % of them with jaundice. Vomiting may be severe and protracted. The abdominal distension was due to result of paralytic ileus arising from retroperitoneal irritation or ascites, or it may occur secondary to a retroperitoneal phlegmon. Jaundice may be occasionally seen in cases of gall stone pancreatitis, in which it represents distal CBD obstruction by gall stones.[12]

On examination, severe pancreatitis was found to be associated with haemorrhage into the retro peritoneum may produce two distinctive sign's in about 3% of patients with pancreatitis namely Turner's sign (Bluish discoloration in the left flank) and Cullen's sign (Bluish discoloration of the periumbilical region).[13] These are due to tracking of bloodstained retroperitoneal fluid through tissue planes of the abdominal wall to the flanks or along the falciform ligament. These signs suggest sever episode of acute haemorrhagic pancreatitis. A third rare finding called, fox sign (Bluish discoloration below the inguinal ligament or at the base of the penis) due to caudal tracking of fluid was also observed. Epigastric and right hypochondriac tenderness was present, sometimes present diffusely the abdomen. Bowel sounds were decreased or absent. Usually there were no masses palpable, if present it could be swollen pancreas or pseudocyst or abscess.

Temperature was mildly elevated (100-101 Degree F) even in uncomplicated cases. In severe cases, orthostatic hypotension and tachycardia may be present, along with tachypnea or even dyspnoea. There may be evidence of a pleural effusion, especially on the left side. In this study out of 100 patients, 58 were males and 42 were females. In our study, majority of patients at the age group of 30-40 (42%) and followed by 40-50 years (32%). The youngest patient was 17 year and the oldest Patient was 69 years. The age and sex-wise recruitment of the subjects in the present study was in accordance with the earlier studies.[14,15] In other studies biliary pancreatitis was most prevalent. The combined etiology of alcohol and biliary pancreatitis is 87.5% which is fairly consistent with the other studies.[16] In males alcoholism induced pancreatitis 48.21% was most common, second commonest is biliary etiology (39.29%). Kandasami P and colleagues reported that 78% of males the predominant etiology is alcoholism and 77% of females, the etiology for acute pancreatitis is biliary etiology.[17] In the present study diabetes mellitus was most prevalent in the study population 57%. Obesity as defined by the current definition was prevalent in 43. %

Conclusion

One of the main causes of increased morbidity and mortality in population is acute pancreatitis. The mortality and morbidity is well associated with the clinical evaluation and lab markers. Since acute pancreatitis may resemble a number of other acute abdominal disorders, a thorough differential diagnosis must be made, which may include perforated viscus, acute cholecystitis, appendicitis, and other related conditions.

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