



Short Communication

IMPEDIMENT AND RISK OF ACUTE RENAL FAILURE IN ACUTE PANCREATITIS PATIENTSNaresh Pahwa, Neeraj Jain¹, Ravindra Kumar², Urvi Waghela², Susmit Kosta², Rupchandra Patidar³Department of Nephrology, ¹Department of Gastroenterology, ²Central Research Laboratory, Sri Aurobindo Institute of Medical Sciences, Indore, ³Department of Medicine, CHL Apollo Hospital, Indore

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Abstract: The present study is focused on the involvement and risk of acute kidney injury in acute pancreatitis patients. We are looking back to the assessed acute pancreatitis patients who presented to our hospital over a period of two years. In the period of study, 382 AP patients were presented to department of medicine. 370 patients (96.8%) were found pancreatic lesion with inflammation, 296 patients (77.5%) were found pancreatic cyst with fluid, 75 patients (19.6%) were found with renal failure, 38 patients (9.95%) were found with respiratory failure, 26 patients (6.81%) were found with pleural effusion. multiple organs failure was found in 40 (10.4) patients. 281 (73.6%) patients had more than a threefold increase in serum amylase and lipase levels. 171 patients were diabetic (44.8%), 80 patients were hypertensive (20.94%) and 100 patients were alcoholic (26.2%). Among the 75 ARF patients, 50 required temporary HD and returned to their baseline kidney function over a period of 3-4 weeks. 20 patients were died out of which 18 patients had acquired renal failure. In conclusion acute pancreatitis when coupled with acute renal failure have high mortality rate.

Keywords: Acute Pancreatitis, Acute Renal Failure, Pancreatitis

INTRODUCTION

Acute pancreatitis (AP) is a sudden inflammatory condition of the pancreas characterized clinically by severe upper abdominal pain which can radiate to the back as well as nausea, vomiting and even diarrhea, fever with chill, hemodynamic instability, tachycardia and respiratory distress. The courses of most AP cases are auto-restricted, but the some situations of about 15-20% of all patients have severe acute pancreatitis and may become worse, due to development of multiple organ malfunctions or local complications like necrosis, pseudocyst and abscess). The inception of SAP is hazardous, with relatively high mortality [1]. Acute renal failure (ARF) is a known complication of SAP. Despite of treatment, the mortality rate of patients with ARF remains high at 58% to 74.7%. The mechanism of ARF that occurs in patients with SAP is still unrecognized and may involve many factors [2].

SAP could also develop diabetes if pancreas no longer produces enough insulin. Insulin is anti-inflammatory hormone that suppresses several pro-inflammatory transcription factors which mediate inflammation [3, 4]. Severe dehydration is also possible in some cases of SAP due to the loss of fluids in an attempt for the body to remove toxins and excess enzymes from the blood [5, 6]. The widespread pathophysiological mechanisms are involved in the inflammatory process and lead to a variety of systemic complications. There is no effective way to manage acute pancreatitis except conservative treatment, and the outcome depends on its severity and the presence of organ failure.

The diagnosis depends on typical clinical features together with a three-fold elevation of pancreatic enzymes. However, increased amylase level is found in certain non-pancreatic conditions like visceral perforation, small bowel ischemia or obstruction and ectopic pregnancy. As lipase is predominately secreted by the pancreas it is more superior and sensitive in diagnosing pancreatitis as compared to amylase [9].

Abdominal imaging techniques that are helpful in confirming acute pancreatitis or excluding other intra-abdominal conditions include ultrasound, CT scan and MRI. Endoscopic ultrasonography and ERCP are more accurate tests for diagnosing and ruling out biliary causes of pancreatitis.

Through this study we focused at impediment and risk of organ failure in acute pancreatitis patients.

MATERIALS AND METHODS

All patients with signs and symptoms suggestive of acute pancreatitis, irrespective of age, gender, and co morbidity visited at a tertiary care center, Indore were recruited for the study between 2010 and 2012. Data was recorded in specialized designed format which included age, gender, symptoms at presentation, number of days the patient was kept on nil per oral, the zenith serum amylase and lipase levels, need for admission to the intensive care unit (ICU), number of days spent in the ICU, local and systemic complications, ultrasound scan findings, amount of fluid given, other organ failure and requirement of hemodialysis (HD).

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Acute pancreatitis was defined as an episode of acute abdominal pain and discomfort with more than threefold increase in serum amylase and/or lipase level. Statistical package for social science (SPSS) version 15.0 was used for data analysis. Results are presented as mean \pm standard deviation for quantitative variables and percentages for qualitative variables.

RESULTS

A total of 382 patients of pancreatitis were recruited for the study. The mean age of patients was 36.2 ± 8.4 years (range 18-68 years). Majority of the patients were males 294 (76.96%). All 382 patients were suffering from epigastric abdomen pain with different systemic complications during their hospital stay. The presenting complaints of patients ultimately diagnosed to have acute pancreatitis are shown in (Table.1). Out of 382 patients, 171 (44.8%) were diabetic, 80 (20.94%) were hypertensive and 100 (26.2%) were alcoholic.

Table.1: Symptoms at presentation acute pancreatitis patients

S.No.	Symptoms in patients	No. of Patients (%)
1.	Abdomen Pain+ Vomiting+ Chest pain	54 (14.13%)
2.	Abdomen Pain+ Vomiting +fever	174 (45.5%)
3.	Abdomen Pain+ Vomiting + Nausea	57 (14.92%)
4.	Abdomen Pain+ Vomiting + Hypertension	98 (25.65%)

370 patients (96.8%) were found pancreatic lesion with inflammation, 296 patients (77.5%) were found pancreatic cyst with fluid, 75 patients (19.6%) were found with renal failure, 38 patients (9.95%) were found with respiratory failure, 26 patients (6.81%) were found with pleural effusion. Multiple organs failure was observed in 40 patients (10.7%) (Table.2).

Table.2: Systemic complications of acute pancreatitis patients

S.No.	Systemic complications	No. of Patients (%)
1.	Pancreatic lesion with Inflammation	370 (96.7%)
2.	Pancreatic Cyst with Fluid	296 (77.5%)
3.	Diabetes	171 (44.8%)
4.	Hypertension	80 (20.94%)
5.	Renal Failure	75 (19.7%)
6.	Respiratory distress	38 (10%)
7.	Pleural Effusion	26 (6.7%)
8.	Multi Organs Failure	40 (10.5%)

20 patients (5.2%) developed different systemic complications during their hospital stay and died. Out of these 20 died patients 18 had acquired renal failure.

DISCUSSION

The yearly incidence of AP in the India is approximately 17 cases per 100,000. Acute pancreatitis results in 100,000 hospitalizations per year. 80% of cases of AP are interstitial and mild; the remaining 20% are necrotizing and severe. Approximately 2000 patients per year die from complications related to AP. [10]. Gallstones and alcohol are the two most common

causes of AP in world, accounting for 80% of cases. Clinical features include preceding biliary colic, the presence of cholelithiasis or biliary dilation on gallbladder ultrasound, and liver function test abnormalities. Gallstone pancreatitis typically does not recur after cholecystectomy or endoscopic therapy (biliary sphincterotomy and stone extraction) [11, 12]. Alcohol is the second leading cause of AP, which typically occurs after episodes of binge drinking. After recurrent episodes, most alcoholics go on to develop chronic pancreatitis. The mortality in patients with acute pancreatitis is associated with the number of failing organs and the severity and reversibility of the organ dysfunction.

The prevalence of acute renal failure alone in severe acute pancreatitis is found to be between 7-25%, while the incidence of acute renal failure along with other complications like respiratory failure, sepsis, and pleural effusion is reported between 1-28% in different studies from various parts of the world [13, 14]. In our study the incidence of acute renal failure alone was 19.7% while 10% of patients developed multiple complications including acute renal failure.

The rationale for antibiotic prophylaxis in acute pancreatitis is based on the fact that mortality for infected pancreatic necrosis is higher than that for sterile necrosis. Randomized controlled trials have shown positive effects for the prevention of infected pancreatic necrosis and even a reduction in mortality, but these effects were not confirmed in all studies [15]. In our study, antibiotics were used empirically in 82% of cases. Chronic diseases, local complications and the presence of organ failure significantly increase the mortality of acute pancreatitis. In this study, 95.5% of patients developed systemic complications, but the overall mortality was only 0.5%. Mortality rates for hospitalized patients vary from 5% to 10% in most series. In patients with interstitial pancreatitis, mortality is close to zero [16]. Mortality is substantially increased in necrotizing pancreatitis (less than 1% for interstitial pancreatitis, 10% for sterile necrosis, 30% for infected necrosis).

In conclusion, Patients with SAP have a high mortality, resulting from complications involving the failure of organs other than the pancreas.

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