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Original Research Article

Demographic profiles, etiology and management of patients presenting with acute pancreatitis in AIMS, B. G. Nagara: a prospective study

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ABSTRACT

Background: Acute pancreatitis remains a common disorder with devastating consequences. Although most episodes are mild and self-limiting, upto a fifth of patients develop a severe attack that can be fatal. Inspite of technical advances in medical and surgical fields acute pancreatitis remains a major cause of morbidity and mortality. So, we have studied the clinical profile and management of acute pancreatitis. Aims and objectives were to study the clinical presentation, complications and treatment modalities of acute pancreatitis that can be offered in our institution and the outcome.
Methods: This prospective study was conducted between November 2018 to October 2020 on patients admitted to Department of Surgery, Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, Mandya. 50 patients with acute pancreatitis were enrolled for the study.
Results: Study included 50 patients with acute pancreatitis, 40 males and 10 females. The peak incidence was in the fourth decade with the median age of 35 years. The commonest etiology was alcohol consumption accounted for 72% of cases followed by gall stones (12%), idiopathic (8%) and others (8%).
Conclusions: Acute pancreatitis was found to be in a younger age group. Serum amylase and lipase should be used for diagnosis wherever possible. Scoring systems help to identify patients who are more likely to have a severe attack and they should be referred to higher centers if adequate facilities are not available. Severe cases should be managed in well-equipped ICU. Timely intervention by endoscopist and surgeons are crucial to reduce morbidity and mortality.

Keywords: Acute pancreatitis, Pain abdomen, Serum amylase, Serum lipase, Vomiting

INTRODUCTION

Acute pancreatitis is a common acute clinical condition requiring emergent care. Acute pancreatitis includes a wide spectrum of disease, from mild self-limiting symptoms to a fulminant process with multiple organ failure and high mortality.[1] Several scoring systems are available involving clinical and laboratory data, which can differentiate mild from severe pancreatitis.[2] Acute pancreatitis has been recognized since antiquity but the importance of pancreas and the severity of its inflammatory disorders were realized only in middle of 19th century.[3,4] The nature of disease was recognized way back in 1925 when Moynihan described acute pancreatitis as- the most terrible of all the calamities that occur in connection with abdominal viscera- but even today with technical advantage in medical and surgical field acute pancreatitis remains a major cause of morbidity and mortality.[5-7] Acute pancreatitis is related to alcohol or biliary tract stone disease in 80% of cases. The remaining 10% is related to metabolic factor, drugs and other condition and 10% are idiopathic.[4,7] Acute pancreatitis is a pathological broad spectrum of disease ranging from parenchymal edema to severe necrotizing pancreatitis. Clinical presentations vary from mild abdominal discomfort to hypotension, metabolic derangement,

sepsis, fluid sequestration, multiple organ failure and death. 90% experience mild to moderate course and self-limited and 10% experience a severe life threatening form of acute pancreatitis.

Diagnosis remains clinical and can be supported by three fold increase above the upper limit of normal of serum amylase. But an estimation of serum lipase, trypsinogen or isoamylase assay are confirmatory and will increase the diagnostic yield.[8] Supportive radiological procedures are sonography, computed tomography and MRI. Currently CECT is the imaging modality of choice where areas of hypoperfusion correlate with necrosis.[9] The treatment of acute pancreatitis is largely supportive. Patient with mild disease are treated by eliminating oral intakes, instituting intravenous hydration and providing frequent parenteral analgesia. In the surgical management there are various diagnostic, prophylactic and therapeutic options available for both the disease process and its complication but none of them have shown to improve the outcome in acute pancreatitis. An increased mortality rate associated with the disease is due to inability to assess the severity of the disease at the outset. Various prognostic scoring systems have been developed involving multiple factor and single factor. The drawback with the current severity scoring system is that they are cumbersome and time consuming and lack sensitivity and specificity. In fact their necessity has been questioned.[10] The incidence of acute pancreatitis (AP) has been rising over the years in western countries and in fact, this disease represents a significant cause of morbidity and mortality regardless of its etiology.[11-13] Due to change in classification system, lack of statistics in our country and lack of accuracy of scoring system, a better sensitive, specific, severity scoring system which can predict at the outset of the disease is very much needed at present.

Aims and objectives

To study the demographic data, various etiological factors and management of acute pancreatitis.

METHODS

Source of data

The study group has evaluated 50 consecutive patient with clinical, biochemical and radiological diagnosis of acute pancreatitis associated with complication (local/systemic), admitted to Department of Surgery, Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, Mandya, between November 2018 to October 2020 after obtaining ethical Committee clearance from the institution.

Inclusion criteria

Patients of both the sex, age above 18 years, written and oral informed consent.

Exclusion criteria

Blunt injury abdomen cases, post-operative cases, refusal to give consent or who are un-cooperative, post ERCP pancreatitis, malignancy, immune compromised patients

Method of collection of data

Data collected using convenient sampling technique from November 2018 to October 2020. All the patients were evaluated thoroughly at the time of admission and frequently in those showed deterioration their clinical status to find out associated local/systemic complication.

The patients are evaluated and followed up according to protocol: detailed history of patients was entered in proforma (age, gender, complaints, etiology, history of alcoholism, calculus cholecystitis, trauma to abdomen etc.). Serum amylase and lipase was investigated immediately on presentation. Preliminary USG of abdomen and pelvis was done on the same day of presentation. CECT was done after 48 hours in all patients except in persistent ARF. In the absence of gallstones and/or history of significant history of alcohol use, a serum triglyceride levels done (>1000 mg/dl taken as diagnostic). After doing all available investigation if no cause was found, considered as idiopathic pancreatitis. Severity assessment done with Atlanta classification. All patients were put on conservative line of management. Patients were followed up daily clinically and serum amylase was repeated on the 3rd day. Repeat USG/CT/MRI abdomen and pelvis was done if patient's condition remained same or deteriorated. If the patient developed any of the above mentioned complications, such patients were evaluated for medical/surgical management of the same complications. Patients were informed about any surgical procedure and consent was taken for the same.

Initial conservative management consists of nasogastric suction, intravenous administration of fluid, antibiotic and supportive care in all patients.

An indwelling urinary catheter was placed in most patient to allow close monitoring of urine output and a CVP catheter was frequently introduced in necessary cases.

Most of the systemic complications were managed by conservative and supportive care including ICU.

Statistical analysis

The results was subjected for appropriate analysis using SPSS software.

RESULTS

A total of 50 consecutive patients of acute pancreatitis who were admitted in the Department of Surgery, Adichunchanagiri Institute of Medical Sciences, B. G.

Nagara, Mandya. All had an admission of acute pancreatitis and satisfied the inclusion criteria.

Age and sex distribution

The peak incidence was in the 4th decade in males (26%) and 5th decade in females (8%). The mean age group in our study is 40.72 years. Out of 50 patients 40 (80%) were males and 10 (20%) were females (Table 1).

Table 1: Age and sex distribution.

Age group in years	Male		Female		Total	
	N	%	N	%	N	%
21-30	11	22	1	2	12	24
31-40	13	26	2	4	15	30
41-50	10	20	4	8	14	28
51-60	5	10	1	2	6	12
≥60	1	2	2	4	3	6
Total	40	80	10	20	50	100

Etiology

The history of alcohol consumption being the etiological factor was in 36 (72%) patients. While gallstone were implicated in 6 (12%) patients, hypertriglyceridemia in 4 (8%), hypercalcemia in 0 (0%) and 4 (8%) developed idiopathic pancreatitis (Table 2).

Table 2: Etiology.

Aetiology	No. of patients	Percentage
Alcohol	36	72
Gall stones	6	12
Hypercalcemia	0	0
Hypertriglyceridemia	4	8
Idiopathic	4	8

Clinical features

Pain abdomen was the presenting complaint in almost the entire 50 patients. Other clinical feature includes vomiting 40 (80%), nausea 08 (16%), fever 12 (24%), jaundice 4 (8%), loose stools 1 (2%) and hematemesis 1 (2%) and abdominal distension 2 (4%) patients (Table 3).

Table 3: Clinical features.

Clinical feature	No. of patients	Percentage
Pain abdomen	50	100
Vomiting	40	80
Nausea	8	16
Fever	12	24
Jaundice	4	8
Hematemesis	1	2
Loose stools	1	2
Abdominal distension	2	4

Investigations

In our present study 84% of the patients had serum amylase levels more than 3 times normal i.e. >240 IU/l and 98% of the patients had serum lipase levels more than 4 times normal i.e. >320 IU/l (Table 4).

Table 4: Investigations.

Investigations	No. of patients	Percentage
S. amylase (>240 u/l)	42	84
S. lipase (>320 u/l)	49	98
Ultrasonography-diagnostic	38	76
Ultrasonography- non-diagnostic	12	24
CECT- diagnostic	45	90
CECT- non-diagnostic	3	6

Ultrasonography

Out Of 50, USG Abdomen was diagnostic in 76% (38 patients) of the patients in our study (Table 4).

CECT abdomen and pelvis

Out Of 50, 48 patients underwent CECT. Remaining 2 patient's CECT was not done due to persistent renal failure.

CECT was diagnostic in 90% (out of 48) of the patients in our study (Table 4).

Complications

All the 50 patients evaluated clinically, biochemically and radiologically and found to have local complications in 30 patients and systemic complications in 14 patients (Table 5).

Table 5: Complications.

Complications	No. of patients	Percentage
Local	30	60
Systemic	14	28

In our study, out of total 50 patients, 44 (88%) patients developed complications, in that 30 patients developed local complications and 14 patients developed systemic complications.

In our study 30 patients developed local complications, in that 30 (60%) pancreatic ascites, 20 (40%) pleural effusion and 6 (12%) pancreatic necrosis.

In our study 14 patients developed systemic complications, in that hyperkalaemia 8 patients (16%), hypocalcaemia 4 (8%) patients, hyperglycaemia 6 (12%) patients, acute renal failure 6(12%) patients, ARDS 8

(16%) patients, upper GI bleeding 2 (4%) patients and septicemia 2 (4%) patients (Figure 1).

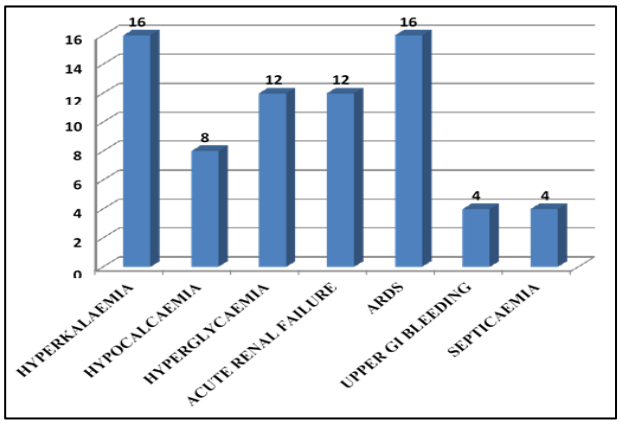

Figure 1: Systemic complications.

Severity

This classification defines three degrees of severity: mild acute pancreatitis, moderately severe acute pancreatitis, and severe acute pancreatitis.

Transient organ failure is organ failure that is present for <48 hours. Persistent organ failure is defined as organ failure that persists for >48 hours (Table 6).

Table 6: Severity.

Severity	No. of patients	Percentage
Mild	32	64
Moderately severe	14	28
Severe	4	8

Patients were divided into three degrees of severity as per Atlanta classification.

In our study 32 (64%) patients were developed mild pancreatitis, 14 (28%) moderately severe pancreatitis and 4 (8%) severe acute pancreatitis.

Management

Out of 50 patients, 44 (88%) were managed conservatively, 4 (8%) patients underwent cholecystectomy on before discharge, 2 (4%) were referred to higher centre in view of complications and 2 (4%) died due to multiorgan failure (1 patient) and ARDS (1 patient) (Table 7).

Table 7: Management.

Management	No. of patients	Percentage
Conservative	44	88
Surgical	4	8
Referral to higher centre	2	4

In our study conservative management includes:

Fluid management: The average fluid requirement was 3.5 l/day. i.v. fluid includes RL, NS and DNS. The total amount of i.v. fluid require to maintain hemodynamic stability was assessed by calculating the amount of fluid require to maintain BP-MAP >60 mmHg, Urine output at least 1 ml/kg body weight/hour.

All the patients were kept NPO with nasogastric tube for about 2-3 days till the patients settled down followed by liquid and soft diet.

Analgesic- i.v. tramadol were given to all patients. Antibiotics- 3rd generation cephalosporin (cefotaxime 1 gm BD) was given to all general ward patients. All the patients responded well.

Patients with severe pancreatitis were managed by imipenem+cilastatin 1 gram BD for 7 days. PPI-pantoprazole 40 mg i.v. Octreotide dose- 0.5 µg/kg/hour subcutaneously BD was given.

In two patients with persistent renal failure haemodialysis was done. In two patients with severe ARDS ventilatory support was given. Repeated USG guided peritoneal aspiration was done for persistent pancreatic ascites.

Hospital stay

Mean hospital stay in our study was 4.75 days (Figure 2).

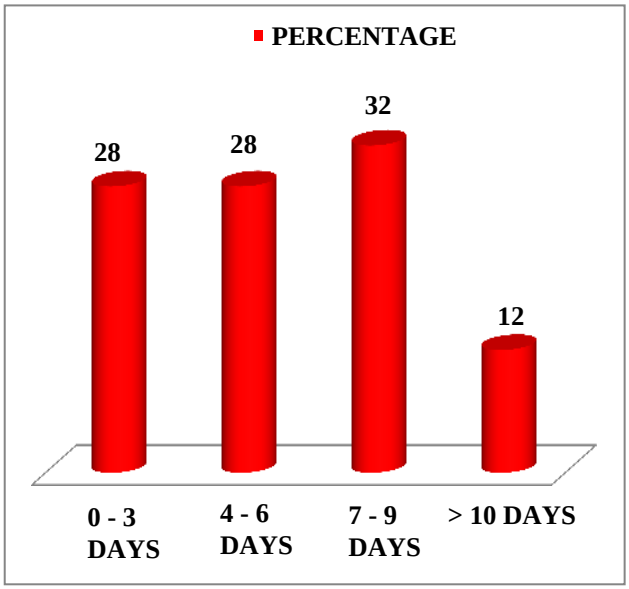

Figure 2: Hospital stay.

Outcome

Out of 50 patients, 46 patients improved, 2 were referred to higher centre and 2 patients died. Out of 2, 1 patient died due to multi organ failure and 1 due to ARDS (Table 8).

Table 8: Outcome.

Outcome	No. of patients	Percentage
Improved	46	92
Referred to higher centre	2	4
Death	2	4
Total	50	100

DISCUSSION

While diagnosing a case of acute pancreatitis, a thorough history, complete physical examination and biochemical tests are necessary. Radiological confirmation may be required. In this study, analysis of clinical presentation of acute pancreatitis was done. Relevant investigations were carried out and appropriately managed depending upon the aetiology & severity of acute pancreatitis. The mean age of presentation in our study was 40.72 years and is comparable to the studies by Nandu et al (38.94 years) and Rao et al (36.2years).[14,15] This is probably because alcohol was the main etiological factor in our study which presents usually in the younger age group. Peak incidence is in 4th decade in males (26%) and 5th decade in females (8%). It is comparable to the study by Rao et al.[15] There was male predominance in our study with males accounting for 80% of patients with M:F ratio 4:1. The Kashid et al and Rao et al also had a higher percentage of males 70.91% and 86.66% respectively.[15,16] Alcohol was the main etiological factor in our study and present in 72% of patients. This was comparable to 78.17% and 76.6% by Nandu et al and Rao et al respectively.[14,15] Pain abdomen was the presenting complaint in entire 100% of patients. This was comparable to 100% by both Rao et al and Nandu et al.[14,15] The sensitivity of serum amylase was 84% in the present study and was comparable to 95.6% sensitive by Koizumi et al.[17] The sensitivity of serum lipase was 98% in the present study and was comparable to 98% sensitive by Corsetti et al.[18] USG was diagnostic in 76% of patients in our study and this was comparable to 81.6% by Rao et al.[15] It was diagnostic in 66.67% of patients in the study by Kashid et al and this may be because USG is operator dependent and also because the view can be obscured by overlying bowel gas.[16] The pancreatic changes noted are granular heterogenecity, hypoechogenecity, increased thickness of the gland and indistinct margins of the gland. It is also used for imaging the various complications such as pseudocyst, pancreatic ascites and abscess. CECT was diagnostic in 90% of patients in our study and this was comparable to 92% by Gislason et al.[19] Although 60% of patients in the present study had ascites, which was higher compared to other studies, the rate of pancreatic necrosis, plueral effusion was comparable to the study by Kashid et al.[16] The current guidelines recommend DCT as a mandatory imaging procedure for patients with persistent organ failure, for those who develop SIRS or sepsis and for patients who do not improve within 6 to 10 days of conservative management. Out of 50, 64% of patients were mild, 28% moderately severe and 8% severe acute pancreatitis. This was comparable to 58.9%, 29.5% and 11.6% the study by Lee et al.[20] Almost all patients in our study i.e. 88% were managed conservatively, 8% (4 patients) were managed surgically and 4% were referred to higher centre. 8% of the patients underwent cholecystectomy before discharge. This was comparable to 80.28%, 19.72% and 0% by Nandu et al.[14] Mean hospital stay in our study was 5.2 days in mild disease and 11.2 days in severe disease. It was comparable to 6.2 days and 11.4 days by Rao et al and 6.6 days and 17.32 days Choudhuri et al.[15,21] Mortality in our study was 4%, it was comparable to 5.45% and 6.5% by Kashid et al and Choudhuri et al.[16,21] Our study had 20% cases of recurrent acute pancreatitis comparable to 22.2% by Baig et al.[22] Severe acute pancreatitis is associated with organ failure with complications such as necrosis, abscess or pseudocyst.

Limitations of the study include referring cases to higher centre in view of complications requiring multispecialty.

CONCLUSION

Acute pancreatitis is a common acute abdominal condition. Most common in men. The peak incidence was 4th decade in males and 5th decade in females. Alcoholism is the most common etiological factor. Most common clinical manifestations are pain abdomen (100%) and vomiting (80%). Serum lipase assessment (sensitivity 98%) is the gold standard diagnostic test and is more sensitive than serum amylase (sensitivity 84%). USG is the initial radiological investigation and is diagnostic in 76% of cases. CECT is diagnostic in 90% of cases. Disease stratification is most commonly done using Atlanta scoring system. Radiological assessment shows acute edematous pancreatitis to be the predominant type. Complications were common with moderately severe and severe acute pancreatitis, pancreatic ascites being the most common. 14 patients were found to have systemic complications and 30 patients had local complications. Local complications were managed conservatively. Systemic complications were managed with supportive and conservative measures. Out of 50 patients, 46 patients were treated with conservative management. Multi organ failure is associated with high mortality rate. It is also concluded from this study that conservative treatment still holds the key in the management of acute pancreatitis and also in acute severe pancreatitis with or without complications in the initial stages of assessment.

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