



Original Research

A Study of Clinical Profile of Acute Pancreatitis and its Correlation with Biochemical and Radiological Parameters

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Abstract

Background: Acute pancreatitis runs a benign course, it is an inflammatory process of pancreas with varying involvement of regional tissues or remote organ systems.

Aims and Objectives

1. To assess the clinical, biochemical and radiological profile of acute pancreatitis patients in our setup.
2. To assess the response to treatment given with the respect to clinical, biochemical and radiological parameters.

Material & Methods: A prospective study was designed for sample of 67 patients admitted in department of surgery JAH group of Hospital G. R. medical college, Gwalior from period of FEB 2017 to JAN 2018. Based on clinical features, Lab values (serum amylase and serum lipase >3 from base line) and radiological finding, suggestive of acute pancreatitis were included and there course during hospital stay, treatment outcome was seen.

Results: Most patients of acute pancreatitis where of mild nature and patients recovered with no complications. Most Patients of moderate and severe pancreatitis recovered with complications. CECT Abdomen helped in early detection of patients with complications (55.25%) had normal findings. Majority of patients were cured (94%).

Conclusion: Acute pancreatitis was most common among patients who were in the 4th to 5th decade of life. Males predominated compared to females as all were alcoholic. Upper abdominal pain, nausea, vomiting and anorexia were the most common presenting symptoms of AP. Only cases of moderate and severe pancreatitis had complications rest improved, gallstone and alcohol were the most common etiological factors. Overall mortality in present study was 1.5% which significantly lower as compared to previous studies.

Keywords: Acute pancreatitis, Contrast Enhance Computed Tomography.

Introduction

Acute pancreatitis is an inflammatory process of pancreas with varying involvement of regional tissues or remote organ system with potentially devastating consequences. Acute pancreatitis has a benign course, with gall stone and alcohol intake being cause of 70% of cases. Incidence of acute pancreatitis increases with age.

Patients of acute pancreatitis can be classified into mild acute pancreatitis (absence of organ failure and system or local complication), moderately severe acute pancreatitis (no organ failure or transient organ failure fewer than 48 hours without or without local complications) and severe acute pancreatitis (persistent organ failure > 48 hours that might contain one or multiple organ system).

Early assessment of severity and resuscitative measures taken affect outcome.

Material and Method

A prospective study was designed for a sample of 67 patients admitted at Department of Surgery, Jayrogya Group of Hospitals, Gajra Raja Medical College, Gwalior between February 2017 to January 2018. All patients with episodes of acute pancreatitis (pain in abdomen, radiating to back, serum amylase and lipase > 3 times than normal value, confirming on CECT abdomen) giving their consent for inclusion in study between group 16 years to 45 years.

All patients underwent detailed history taking, clinical examination and series of investigation as per proforma after selection. Laboratory values on arrival and during course of treatment for serum amylase, serum lipase, total leucocyte count, random blood sugar and serum calcium. Radiological investigation included chest x-ray, USG abdomen and CECT abdomen.

Treatment given to patient was nasogastric suction, no oral feeding till vomiting was controlled, antibiotic injections (meropenem, metronidazole), analgesic injection (tramadol), antacid injections (pentoprazole), parenteral nutrition was given.

Operative treatment was reserved for selected patients not improving on conservative measures

after 6 week of episode of acute pancreatitis. Operative procedure included exploratory laparotomy with debridement and necrosectomy. Complications were recorded based on contrast enhanced computed tomography (CECT) of abdomen findings:

1. Peripancreatitis fluid collection
2. Pseudocyst
3. Pancreatic necrosis
4. Pancreatic necrosis with infection

Outcome of above patient was recorded as cured, absconded, leave against medical advice, referral to higher centre, expired.

After tabulating the observations, statistical analysis was done using IBM SPSS Ver. 20 software. Cross tabulation and frequency distribution was done to prepare tables, Microsoft office 2010 was used to prepare graph, Chi-square test was used to compare the categorical variables whereas descriptive analysis was used to find out the mean \pm standard deviation.

Results

Out of 67 patients enrolled for study of cases of acute pancreatitis. One patient was excluded as he got leave against medical advice on 1st day, 66 patients were included in the study, one patient died i.e. 1.5% was the mortality rate in the study.

Patient characteristics

Most of patients in the age group of 31-40 years (28.35%), admitted with chief complaint of upper abdominal pain, localized (100%), also most patient reported pain radiating to back (95.3%), accompanied with nausea (91.4%), vomiting (65.67%) and anorexia (58.2%) also most patients had normal blood pressure (56.7%), tachycardia in 88% patients. On per abdomen examination, tenderness (100%) present in all cases, tense (95%) and guarding (91.04%), hematological parameters like total leucocyte count within normal limit (62.7%), blood sugar normal for 95% and serum amylase (94%) and lipase (86.6%) greater than 3 times.

Table 1 Showing sex distribution among age group

Age group	Sex		Total
	F	M	
≤20	2	5	7
21-30	6	8	14
31-40	11	8	19
41-50	6	9	15
51-60	8	0	8
>60	2	2	4
Total	35	32	67

Table 2 Showing response to treatment in presenting complaints

S. No.	Chief Complaints	On admission	Day 3	Day 7
1.	Upper abdominal pain	67 (100%)	35 (52.2%)	2 (3%)
2.	Abdominal pain that radiates to back	64 (95.52%)	31 (46.2%)	1(1.5%)
3.	Abdominal distension	28 (41.52%)	11(16.42%)	2 (3%)
4.	Palpable abdominal lump	11 (16.42%)	1(1.5%)	0 (0%)
5.	Jaundice	2 (2.99%)	0 (0%)	0 (0%)
6.	Anorexia	39 (58.21%)	12 9(17.9%)	2 (3%)
7.	Nausea	61 (91.4%)	24 (35.8%)	1(1.5%)
8.	Vomiting	44 (65.67%)	17 (25.3%)	0 (0%)
9.	Not passed flatus and motion	2 (2.99%)	0 (0%)	0 (0%)

Table 3 Showing comparison of pulse and blood pressure in patients with acute pancreatitis

		On admission	Day 3	Day 7	P value
P.R	Tachycardia	33 (49.3%)	8 (11.8%)	1 (1.5%)	0.001
	Normal	34 (50.7%)	59 (88%)	66 (98.5%)	
B.P.	Hypertension	27 (40.29%)	18 (26.86%)	2 (2.9%)	0.001
	Hypotension	2 (2.9%)	2 (2.9%)	1 (1.49%)	
	Normal	38 (56.71%)	47 (70.14%)	64 (95.52%)	

Table 4 Showing etiological distribution of cases of acute pancreatitis

Etiology	Sex		Total
	F	M	
Alcohol	0	20	20
Gallstones	33	8	41
Idiopathic	2	0	2
Trauma	0	4	4
Total	35	32	67

Table 5 Comparing per abdominal findings in patients of acute pancreatitis

		On admission	Day 3	Day 7	P value
1.	Soft	0	0	0	NA
2.	Tense	64 (95.5%)	23 (34.3%)	1 (1.5%)	0.001
3.	Tender	67 (100%)	34 (50.7%)	3 (4.5%)	0.001
4.	Non Tender	0	33 (49.3%)	64 (95.5%)	0.001
5.	Grey turner sign	0	0	0	NA
6.	Guarding	61 (91.1%)	24 (35.8%)	3 (4.5%)	0.001
7.	Rigidity	56 (83.6%)	21 (31.3%)	1 (1.5%)	0.001
8.	Bowel Sounds	2 (3%)	0	0	0.562
9.	Cullens Sign	0	0	0	NA

Table 6 Comparing laboratory findings in patients with acute pancreatitis

	Values	On Admission	Day 3	Day 7
TLC	1. < 11000 2. 11000-16000 3. >16000	42(62.7%) 11 (16.4%) 14 (20.9%)	35 (52.2%) 12 (17.9%) 16 (23.88%)	27 (40.3%) 7 (10.4%) 12 (17.9%)
Serum Ca++	1. <8mg% (7-8 mg) 2. 8 mg% 3. >8mg% (8-9mg)	30 (50.7%) 4 (5.9%) 33 (49.3%)	31 (46.3%) 16 (23.88%) 16 (23.88%)	15 (22.4%) 20 (29.85%) 13 (19.4%)
Lipase	1. WNL 2. WNL< 3 times 3. > 3 times	2 (3%) 7 (10.4%) 58 (86.6%)	39 (58.2%) 8 (11.9%) 14 (20.9%)	31 (46.3%) 7 (10.4%) 8 (11.9%)
Amylase	1. WNL 2. WNL< 3 times 3. > 3 times	2 (3%) 2 (3%) 63 (94%)	16 (23.88%) 7 (10.4%) 40 (59.7%)	31 (46.3%) 7 (10.4%) 8 (11.9%)
Blood Glucose	1. WNL 2. WNL = 200mg% 3. >200 mg%	64 (95.5%) 2 (3%) 1 (1.5%)	60 (89.5%) 2 (3%) 1 (1.5%)	46 (68.6%) 0 0

Table 7 Showing complications in patients of acute pancreatitis in CECT abdomen

Complications	No of patients (%)
Nil	38 (56.7%)
Pseudocyst and Necrosis	21 (31.3%)
Pseudocyst	4 (6%)
Necrosis	3 (4.5%)
Peripancreatic fluid collection	1 (1.5%)
Total	67 (100%)

Table 8 Showing outcome in patients of acute pancreatitis

Outcome	No of patients (%)
Cured	63 (94%)
LAMA	3 (4.5%)
Expired	1 (1.5%)
Total	67 (100%)

Out of 67 patients only 6 (9%) patients had pleural effusion, USG abdomen reported bulky pancreas in 83.6% of patients and 8% of patients had bulky pancreas with pseudocyst, contrast enhanced computed tomography was normal for 55.2% of patients and 44.8% of patients had complications like pseudocyst and necrosis in 31.3% patients, only pseudocyst in 6% patients, necrosis in 4.5% patients, peripancreatic fluid collection in 1.5% of patients. Outcome of study cured 94% patients, LAMA 4.5%, expired 1.5% patients. Main etiologic agent being gall stone in females and alcohol intake in males.

Presenting complaints significantly reduced during course of admission, most of the patients were relieved of complaints in a week time.

Discussion

Acute pancreatitis is a common emergency accounting for 3% of patients admitted with acute pain abdomen, spectrum of disease ranging from mild attacks of abdominal pain to multiorgan failure and death. Overall mortality of acute pancreatitis is 1-2%, but in severe acute pancreatitis mortality is 10-30%. Early diagnosis and identification of those who are at risk

Acute pancreatitis was most common among patients who were in the 4th to 5th decade of life. Males predominated compared to female as all were alcoholic. Upper abdominal pain, Nausea, vomiting

and anorexia were the most common presenting symptoms of AP. Gallstone and alcohol were the most common etiological factors. Overall mortality in present study was 1.5% which significantly lower as compared to previous studies.⁵

In our study on per abdomen examination, tenderness (100%), tense abdomen (95.52%), guarding per abdomen (91.04%) and absent bowel sound (83.58%). Similar study results were found on study done Ahmed et al.⁶

On hematological examination in our study, TLC was 11,000 (62.7% patients), 1.5% patients had blood glucose > 200 mg/dl, serum amylase (94% patients), serum lipase (86% patients) > 3 times of normal. Our study is very much similar to Ahmed et al and others

Radiological findings like chest x-ray reported pleural effusion in 9% patients very similar to study done by Negi et al. USG findings reported bulky pancreas in 83.6%, bulky pancreas and pseudocyst (11.9% patients). Findings similar to study done by Ahmed et al. Contrast enhanced computed tomography of abdomen reported complications in 44% patients in our study. Complication like pseudocyst with necrosis (31.3%), pseudocyst (6%), necrosis (4.5%), peripancreatic fluid collection (1.5%) similar to study done by Ahmed et al.

Most common etiology was gall stone (n=41) followed by alcohol (n=20) similar studies like Negi et al, Baig SJ et al, Macro S et al reported gall stone and alcohol have main etiologic agents.

In our study, 94% patients were cured, 4.5% patients got leave against medical advise and 1.5% patients expired. Our study is similar to Negi et al (mortality was 5.6%), also Ahmed et al in a similar study reported mortality (6%).

Limitation of Study

Cross sectional Nature of the present study was the main limitation; due to that present study findings cannot be applied to larger population; small sample size was another main limitation; a large clinical trial is required to strengthen the present study findings.

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