

A STUDY OF AETIOLOGY, CLINICAL FEATURES AND MANAGEMENT OF ACUTE PANCREATITIS IN A TERTIARY CARE HOSPITAL IN SOUTHERN ODISHA

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ABSTRACT

BACKGROUND

Acute pancreatitis is a common condition involving the pancreas. The estimated incidence is about 3% of cases presenting with pain abdomen in the UK. The hospital admission rate for acute pancreatitis is 9.8/100,000 per year in UK and annual incidence may range from 5-50/100,000 worldwide. Gall stone disease and alcohol account for greater than 80% of all patients with acute pancreatitis, with biliary disease accounting for 45% and alcohol found in 35% of patients.

Given the wide spectrum of disease seen, the care of patients with pancreatitis must be highly individualised. Patients with mild acute pancreatitis generally can be managed with resuscitation and supportive care. Aetiological factors are sought and treated, if possible, but operative therapy essentially has no role in the care of these patients. Those with severe and necrotising pancreatitis require intensive therapy, which may include wide operative debridement of the infected pancreas or surgical management of local complications of the disease.

AIM OF THE STUDY

1. To study the age and sex prevalence of acute pancreatitis.
2. To study the various aetiological factors of acute pancreatitis.
3. To study the clinical presentation and management of acute pancreatitis.

MATERIALS AND METHODS

Patients admitted to the Department of General Surgery at M.K.C.G Medical College and Hospital, Berhampur were taken up for the study. Totally, 49 patients with 53 episodes of acute pancreatitis were studied from September 2013 to August 2015.

RESULTS AND CONCLUSIONS

Acute pancreatitis is a common cause of acute abdomen in patients presenting to the surgical emergency department. Alcohol being the most common cause of acute pancreatitis in this part of the country, it has a male preponderance and most commonly presents in the 4th decade of life. It is mainly a clinical diagnosis supplanted with biochemical and radiological findings. The management is mainly conservative, with surgery reserved for patients with biliary pancreatitis and those developing complications secondary to acute disease. In those developing necrosis, there is a trend toward delaying necrosectomy. Recent results support the use of minimally invasive procedures for the various complications associated with acute pancreatitis.

KEYWORDS

Amylase, Lipase, Ultrasonography, Necrotising Pancreatitis.

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INTRODUCTION: Acute pancreatitis is a common cause of hospital admission. It is a common condition involving the pancreas. Acute pancreatitis includes a wide spectrum of disease, from one with mild self-limiting symptoms to fulminant processes with multiorgan failure and high mortality. Most experience relatively minor episodes of

disease characterised by mild parenchymal oedema without distant organ dysfunction and an uneventful recovery. Severe episodes; however, may involve a progression to extensive pancreatic necrosis, development of the systemic inflammatory response syndrome (SIRS), multiorgan failure, rapid clinical deterioration, and even death. Although the overall mortality rate for acute pancreatitis is 2–10%, this is related primarily to the 10–30% of patients with severe disease characterised by pancreatic and peripancreatic necrosis.¹

Given the wide spectrum of disease seen, the care of patients with pancreatitis must be highly individualised. Patients with mild acute pancreatitis

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generally can be managed with resuscitation and supportive care. Aetiological factors are sought and treated, if possible, but operative therapy essentially has no role in the care of these patients. Those with severe and necrotising pancreatitis require intensive therapy, which may include wide operative debridement of the infected pancreas or surgical management of local complications of the disease. Whereas early aggressive debridement was used commonly for all patients with pancreatic necrosis in the past, now most pancreatic surgeons have adopted a more conservative algorithm of selective and delayed pancreatic debridement.²

The present study evaluates the aetiology, age-sex distribution, clinical manifestations, diagnostic methods, and management of acute pancreatitis in M.K.C.G Medical College and Hospital, Berhampur.

MATERIALS AND METHODS: Patients admitted to the department of general surgery at M.K.C.G Medical College and Hospital, Berhampur were taken up for the study. Totally, 49 patients with 53 episodes of acute pancreatitis were studied from September 2013 to August 2015. All patients admitted in surgical wards in M.K.C.G Medical College and Hospital, Berhampur and diagnosed as acute pancreatitis with age more than 14 years.

RESULTS: There were a total of 53 episodes of acute pancreatitis in 49 patients with 4 recurrences (n=53).

Patient underwent open cholecystectomy for biliary pancreatitis.

Age Group in yrs.	Male (n=47)		Female (n=06)		Total (n=53)	
	No.	%	No.	%	No.	%
15-25	04	8.51	00	00	04	7.55
26-35	08	17.02	02	33.33	10	18.85
36-45	21	44.7	02	33.33	23	43.4
46-55	07	14.9	01	16.67	08	15.1
56-65	07	14.9	01	16.67	08	15.1
>65	00	00	00	00	00	00

Table 1: Age and Sex Distribution

The above table shows analysis of age and sex distribution. In our study, the youngest was 18 years old and the eldest was 60 years old.

The highest incidence was noted in the age group of 36-45 years, accounting for 43.4% of the patients. The mean age of presentation was 38.1 years ± 8.8 years.

In our present series, we had a male predominance who accounted for 88.7% of the patients and the females accounted for 11.3% of the total patients with a male to female ratio of 7.8:1.

Symptoms	No. of patients	Percentage (%)
Pain abdomen	53	100
Nausea/Vomiting	44	83
Abdominal distention	18	33.96
Fever	09	16.98
Jaundice	03	5.66

Table 2: Symptomatology

In our study, 100% of the patients presented with pain abdomen, 83% with nausea/vomiting, 33.96% with abdominal distension, 16.98% with fever and 5.66% with jaundice.

Signs	No. of patients	Percentage (%)
Tenderness	53	100
Mass abdomen	2	3.77
Ascites	8	15.1
Shock	5	9.43

Table 3: Signs

In our study, 100% of the patients had tenderness, 3.77% had pseudocyst presenting as mass-abdomen, 15.1% had ascites, and 9.43% of the patients presented in shock.

Aetiology	No. of patients	Percentage (%)
Alcoholism	43	81.1
Biliary	2	3.77
Idiopathic	8	15.1

Table 4: Aetiological Factors

In our present study, alcoholism was the main aetiological factor accounting for 81.1% of the cases, 3.77% of patients had biliary pancreatitis and the cause was unknown in 15.1% of patients.

Investigations	Elevated	Percentage (%)
RBS (>180 mg/dL)	12	22.6
BUN (> 45 mg/dL)	8	15.1
S. Amylase (> 240 IU/L)	29	54.7
S. Calcium (< 8 mg/dL)	12	22.6
WBC Count (> 15,000 cells/mm ³)	4	7.55
AST (> 200 IU/L)	0	0

Table 5: Laboratory Investigations

In our present study, 22.6% of patients presented with hyperglycaemia, 15.1% had raised blood urea nitrogen (BUN), 22.6% had hypocalcaemia, 7.55% had a WBC count of more than 15,000 cells/mm³, and none of the patients had elevated AST levels. 54.7% of the patients had S. amylase levels more than three times normal i.e. >240 IU/L.

USG	No. of patients	Percentage (%)
Diagnostic	46	86.8
Non-Diagnostic	7	13.2

Table 6: USG Examination

USG Abdomen was diagnostic in 86.8% of the patients in our study. 7 (13.2%) patients had fatty liver on USG.

Severity	No. of patients	Percentage (%)
Mild acute pancreatitis	41	77.4
Severe acute pancreatitis	12	22.6

Table 7: Severity of Acute Pancreatitis

In our study, 12(22.6%) patients developed various complications enumerated below and were classified as severe acute pancreatitis and rest 41(77.4%) of the patients had no complications and/or suffered from transient organ dysfunction and were classified as mild acute pancreatitis.

Complications	No. of patients	Percentage (%)
Acute fluid collection	3	5.66
Pseudocyst	2	3.77
Ascites	8	15.1
Pleural effusion	9	16.98
Pancreatic necrosis	2	3.77
Venous thrombosis	1	1.89
GI bleeding	1	1.89
Organ failure	5	9.43

Table 8: Complications of Acute Pancreatitis

In our study of the total 12(22.6%) patients developing complications, 3(5.66%) had acute fluid collections, 2(3.77%) had pseudocyst, 8(15.1%) had ascites, 9(16.98%) had pleural effusion, 2(3.77%) had pancreatic necrosis, 1(1.89%) had superior mesenteric vein thrombosis, 1(1.89%) had GI bleed and 5(9.43%) had organ failure.

All the complications were conservatively managed except for one patient with bilateral pleural effusion for whom bilateral intercostal drainage was done. The patient with superior mesenteric vein thrombosis was discharged against medical advice and the patient with GI bleed died.

Sex	Kashid A et al ³	Choudhuri G et al ⁴	Pupelis G et al ⁵	Buchler MW et al ²	Present study
Male (%)	70.91	66.6	73.7	61	88.7
Female (%)	29.09	33.4	26.3	39	11.3

Table 11: Comparison of Sex

AETIOLOGY: Alcohol was the main aetiological factor in our study and present in about 81.1% of patients. This was comparable to the study by Sand J⁶ at Finland. In the other studies, gall stone was the main aetiological factor. The percentage of idiopathic cases was comparable.

Procedure: Of the 2(3.77%) patients with biliary pancreatitis, 1 (1.89%) patient underwent open cholecystectomy in the same admission and the postop recovery was uneventful. The other patient was lost to followup.

Recurrence: 4(7.55%) of the total patients had a recurrence during the study period. They were managed conservatively.

Hospital stay	Overall	Mild pancreatitis	Severe pancreatitis
Range (days)	2-18	2-13	2-18
Mean (days)	5.5	5.2	6.7

Table 9: Hospital Stay

Overall, the mean hospital stay was 5.5 days and the mean hospital stay for mild and severe pancreatitis was 5.2 and 6.7 days respectively.

MORTALITY: In our study, 1(1.89%) patient died. The patient died due to gastrointestinal bleeding secondary to acute pancreatitis.

DISCUSSION:

Age: The mean age of presentation in our study was 38.1 years and is comparable to the study by Kashid A et al.³ Other studies had late presentation in the 5th and 6th decade. This is probably because alcohol was the main aetiological factor in our study which presents usually in the younger age group.

Mean	Kashid A et al ³	Choudhuri G et al ⁴	Pupelis G et al ⁵	Buchler MW et al ²	Present study
Age in years	35	44.89	47	55.1	38.1

Table 10: Comparison of Age

Sex: There was a male predominance in our study with males accounting for 88.7% of patients with a M:F::7.8:1. The other studies although had a higher percentage of males the ratio of M:F was low. This again could be attributed to alcohol which was the main aetiological agent.

Etiology	Kashid A et al ³	Choudhuri G et al ⁴	Pupelis G et al ⁵	Sand J et al ⁶	Buchler MW et al ²	Present study
Alcohol (%)	29.1	45.83	54	70	33	81.1
Biliary (%)	36.4	26.04	19	20	45	3.77
Idiopathic (%)	14.5	19.37	27	10	22	15.1

Table 12: Comparison of Aetiology

Clinical Features: The clinical features in the present study were comparable to the study by Kashid A et al.³

Clinical features	Kashid A et al ³	Present study
Pain abdomen (%)	92.73	100
Nausea/Vomiting (%)	60	83
Abdominal distention (%)	16.36	33.96
Fever (%)	20	16.98
Jaundice (%)	7.27	5.66

Table 13: Comparison of Clinical Features

Serum Amylase Sensitivity: The sensitivity of serum amylase was 54.7% in the present study and was comparable to the study by Kashid A et al.³ But in the study by Thomson,⁷ it was 95.6% sensitive and this can be attributed to the late presentation of patients to our institution, and also because alcohol is the main aetiological agent, where the rise of S. amylase is less compared to biliary pancreatitis.

Serum Amylase	Anand Kashid et al ³	Thomson et al ⁷	Present study
Sensitivity (%)	50.9	95.6	54.7

Table 14: Comparison of Serum Amylase Sensitivity

Accuracy of USG Abdomen: USG was diagnostic in 86.8% of patients in our study and this was comparable to the study by Ammori et al.⁸ It was diagnostic in 66.67% of patients in the study by Kashid A and this may be because USG is operator dependent and also because the view can be obscured by overlying bowel gas.

Complications	Kashid A et al ³	Choudhuri G et al ⁴	Buchler MW et al ²	Present study
Acute fluid collection (%)	34.54	40.5	-	5.66
Pseudocyst (%)	0	24.9	2.45	3.77
Ascites (%)	0	-	-	15.1
Pleural effusion (%)	34.54	-	-	16.98
Pancreatic necrosis (%)	18.18	40.5	42.15	3.77
Venous thrombosis (%)	0	0	0.5	1.89
Organ failure (%)	29	40.5	36.28	9.43
GI bleeding (%)	1.8	3.1	0	1.89
Pancreatic abscess (%)	5.45	0	0.5	0

Table 17: Comparison of Complications

Procedure: Only 1(1.89%) patient with biliary pancreatitis underwent open cholecystectomy, and the others were managed conservatively. This low rate of intervention in our study was because majority of our patients had mild disease, and also because alcohol was the most common aetiology. Patients in the other studies underwent various procedures like ERCP with sphincterotomy, open and

USG Abdomen	Anand Kashid et al ³	Ammori BJ et al ⁸	Present study
Diagnostic (%)	66.67	86	86.8
Nondiagnostic (%)	33.33	14	13.2

Table 15: Comparison of Accuracy of USG ABDOMEN

Severity of Acute Pancreatitis: 77.4% of the patients had a mild disease in our study whereas the other studies had a higher proportion of severe disease. Ours is a government funded institute, and most of the patients belonging to low socioeconomic status with acute pain abdomen are referred, and this may be the reason for less percentage of severe cases.

Severity	Kashid A et al ³	Choudhuri G et al ⁴	Buchler MW et al ²	Present study
Mild disease (%)	52.73	47.7	58	77.4
Severe disease (%)	47.27	52.3	42	22.6

Table 16: Comparison of Severity of Acute Pancreatitis

Complications: Although 15.1% of patients in the present study had ascites which was higher compared to other studies, the rate of pancreatic necrosis was more in other studies as against 3.77% in our study. Organ failure was seen in 9.43% of our patients whereas it was much higher in other studies and this is because most patients in our study had mild disease.

laparoscopic cholecystectomy, pancreaticojejunostomy for pancreatic fistula, cystojejunostomy for pseudocyst and open drainage for pancreatic abscess.

Procedure	Kashid A et al ³	Buchler MW et al ²	Present study
ERCP+ES (%)	20	28.4	0
LC (%)	14.5	17.2	0
OC (%)	1.8	9.3	1.89
Necrosectomy (%)	9.1	13.7	0
Pancreaticojejunostomy (%)	3.64	0.5	0
Abscess drainage (%)	5.45	0.5	0
Cystojejunostomy (%)	0	2.5	0

Table 18: Comparison of Procedures

Duration of Hospital Stay: The duration of stay in mild cases being 5.2 days is comparable to the other studies. The duration of stay in severe cases being 6.7 days was less compared to other studies.

Mean hospital stay	Kashid A et al ³	Choudhuri G et al ⁴	Buchler MW et al ²	Present study
Mild disease (days)	10	6.6	13	5.2
Severe disease (days)	13.5	17.32	44.1	6.7

Table 19: Comparison of Duration of Hospital Stay

MORTALITY: The mortality rate in our study standing at 1.89% is less compared to other studies as the percentage of severe cases was more in the other studies.

Mortality	Kashid A et al ³	Choudhuri G et al ⁴	Buchler MW et al ²	Present study
Percentage (%)	5.45	6.5	4.4	1.89

Table 20: Comparison of Mortality

SUMMARY: A total of 49 patients with 53 episodes of acute pancreatitis were admitted in the department of surgery, M.K.C.G Medical College and Hospital, Berhampur in the study period from September 2013 to August 2015.

A brief introduction and a historical review of pancreas has been presented with a detailed discussion on the surgical anatomy, physiology, aetiopathogenesis, clinical features, investigations and management of acute pancreatitis.

The purpose of the present study was to evaluate the age and sex prevalence, the varied presentation, various diagnostic modalities and management of acute pancreatitis.

The findings of this study were compared with those available in literature. The results have been represented with tables and graphs for better understanding.

The Observations of Our Study are Summarised Below:

- There was a male preponderance with 88.7% of the total patients being males.
- Patients in the 4th decade were commonly affected.
- The most common presentation was pain abdomen mainly situated in the epigastric region, radiating to back and associated with nausea and vomiting.
- Alcohol is the most common cause of acute pancreatitis, found in 81.1% of the patients.
- Most common modality of investigation was serum amylase and USG Abdomen with serum amylase diagnostic in 54.7% and USG diagnostic in 86.8% of the patients.
- CT Abdomen was reserved for patients with diagnostic dilemma, severe pancreatitis and in patients with no clinical improvement even after 72 hours.
- 77.4% of the patients had a mild attack of acute pancreatitis and 22.6% of them had a severe attack.
- Initial management included adequate fluid resuscitation, adequate analgesia and nutritional support.
- Nasogastric decompression was advocated if there was significant nausea/vomiting or if patient had ileus.
- Early enteric feeding was advocated but if the feeds were not tolerated even after 5 days of admission, parenteral nutrition was started.
- Prophylactic antibiotic was started for patients with severe disease or those developing complications.
- A total of 12(22.6%) patients developed complications, 3(5.66%) had acute fluid collections, 2(3.77%) had pseudocyst, 8(15.1%) had ascites, 9(16.98%) had pleural effusion, 2(3.77%) had pancreatic necrosis, 1(1.89%) had superior mesenteric vein thrombosis, 1 (1.89%) had GI bleed and 5(9.43%) had organ failure. All of them were managed conservatively except for one patient with bilateral pleural effusion which was drained by intercostal drainage.
- Of the 2 patients with biliary pancreatitis, 1 underwent open cholecystectomy.
- There were 4 recurrences during the study period.
- The mean hospital stay was 5.2 days for mild and 6.7 days for severe pancreatitis.
- 1 patient died due to upper gastrointestinal bleed.

CONCLUSION:

- Acute pancreatitis is a common cause of acute abdomen in patients presenting to the surgical emergency department. Alcohol being the most common cause of acute pancreatitis in this part of the country, it has a male preponderance and most commonly presents in the 4th decade of life.

- It is mainly a clinical diagnosis supplanted with biochemical and radiological findings.
- The management is mainly conservative, with surgery reserved for patients with biliary pancreatitis and those developing complications secondary to acute disease.
- In those developing necrosis, there is a trend toward delaying necrosectomy. Recent results support the use of minimally invasive procedures for the various complications associated with acute pancreatitis.

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