

Comprehensive Study of Acute Pancreatitis (Diagnosis, Disease Course, and Clinical Management): A Retrospective and Prospective Study

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Abstract

Background: Acute pancreatitis is an acute inflammatory process of the pancreas with variable involvement of other tissues or remote organ systems. Acute pancreatitis has widely variable clinical and systemic manifestations, spanning spectrum from mild self-limiting episode of upper abdominal pain, nausea, vomiting to severe life-threatening multi-organ failure including sepsis, renal failure, acute respiratory distress syndrome, and death.

Materials and Methods: This retrospective and prospective study was conducted on 110 patients admitted in the various wards of Dr. S.N. Medical College and Associated Group of Hospitals, Jodhpur, with the diagnosis of acute pancreatitis.

Results: Incidence of acute pancreatitis is in the age group of 31-40 years. Biliary tract stone disease and alcohol are the most common causes of acute pancreatitis. Acute pancreatitis is more common among males (male:female - 2.23:1).

Conclusion: The most common presentation of acute pancreatitis is epigastric pain followed by nausea and vomiting. Glasgow prognostic scoring system is fair enough to categorize and predict the course of illness, thus enabling proper management of the patients.

Key words: Abdominal, Acute, Pancreatitis

INTRODUCTION

Acute pancreatitis is an acute inflammatory process of the pancreas with variable involvement of other tissues or remote organ systems. Acute pancreatitis has widely variable clinical and systemic manifestations, spanning spectrum from mild self-limiting episode of upper abdominal pain, nausea, vomiting to severe life-threatening multi-organ failure including sepsis, renal failure, acute respiratory distress syndrome, and death.

Biliary tract stone disease and alcoholism account for 80-90% of cases. Rest of the cases include trauma, surgery, drugs, hereditary, infection, toxins, hyperparathyroidism, hypercalcemia, hyperlipidemia, and mechanical obstruction.

Diagnosis is based on combination of clinical presentation and elevation of blood amylase (>3 times normal) and lipase (>2 times normal). Serum bilirubin, alkaline phosphatase, and serum aspartate transaminase/alanine transaminase are elevated in biliary acute pancreatitis. Leukocytosis, raised blood urea nitrogen, fall in hematocrit, rise in C-reactive protein (CRP), and hypoxia are the systemic markers of acute pancreatitis. ultrasonography (USG) abdomen is the initial investigation for acute abdomen, and pancreatic edema, swelling, peripancreatic fluid collection, gallstones, and extra-pancreatic ductal dilatation can be detected.

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If the biochemical markers are normal, contrast-enhanced computed tomography (CECT) scan of the abdomen can confirm the clinical impression of acute pancreatitis. Sensitivity of CECT ranges from 77-92% and specificity is 100%. CECT gives an objective assessment of disease state. System of grading the CT information (Balthazar score) is based on the degree of pancreatic swelling, amount of fluid in peripancreatic tissue, and degree of non-perfusion of pancreas.

More than 80% of cases of acute pancreatitis are mild and managed by conservative treatment. Only 20% of cases are of severe necrotizing pancreatitis that needs intensive care, multiple organ supports, and surgical interventions.

Differentiation between acute interstitial pancreatitis, necrotizing pancreatitis, pancreatic abscess, and acute pseudocyst is mandatory for the choice of surgical treatment. If the morphological evaluation by dynamic pancreatography reveals pancreatic or peripancreatic necrosis, bacteriological evaluation by CT-guided needle aspiration is the mainstay of further decision-making and should be performed if general symptoms and inflammation are not responding to conservative therapy. Basically, operative treatment may be directed against underlying pathology (e.g., cholelithiasis) and may aim to manage complication. Infected necrosis is the only clear indication of surgery. Whether the choice should be debridement and gravity drainage, continuous closed lavage of the lesser sac, staged relaparotomies/laparostomies, or open packaging depends on the extent of the process and individual situations. Peripancreatic fluid collection and acute pancreatic pseudocyst without ductal pathology rarely need operative intervention in early stage whereas abscesses resulting from infected necrosis should be dealt with by surgery rather than by percutaneous drainage.

Aims and Objectives

1. To study the etiological spectrum of acute pancreatitis
2. To study the clinical profile of acute pancreatitis
3. To evaluate the role of various imaging procedures in the management of acute pancreatitis
4. To evaluate the surgical/interventional procedures in the management of acute pancreatitis.

MATERIALS AND METHODS

This retrospective and prospective study was conducted on 110 patients admitted in the various wards of Dr. S.N. Medical College and Associated Group of Hospitals, Jodhpur, with the diagnosis of acute pancreatitis. The retrospective data (of 55 patients) were collected from the information available in bed head tickets of discharged/expired patients who were admitted with the diagnosis

of acute pancreatitis. For the prospective data, diagnosis of acute pancreatitis was based on the clinical findings and biochemical markers. Patients underwent various imaging modalities such as ultrasonography and CECT scan of the abdomen when the biochemical markers were in normal range. In all the patients, serum amylase levels were measured. Patients were thoroughly investigated, which included complete blood count, blood sugar, blood urea, serum creatinine, X-ray chest posteroanterior view, plain X-ray abdomen, electrocardiogram, and special investigations such as serum lipase, liver function tests, serum calcium, serum lactate dehydrogenase, serum protein, lipid profile, serum alkaline phosphatase, serum electrolytes, and serum CRP levels. Patients were then categorized into mild and severe acute pancreatitis according to the Glasgow scoring system. As per indications, a selected group of patients underwent CECT abdomen to stage the severity of acute pancreatitis, detect pancreatic parenchymal necrosis, and diagnose local complications. On the basis of these CT findings, Balthazar score and CT severity index (CTSI) were calculated. Various endoscopic interventions such as endoscopic retrograde cholangiopancreatography (ERCP) were done in some of the cases for the therapeutic purpose and to undergo endoscopic sphincterotomy/stenting. As per 85-90% of cases had mild disease, patients were managed conservatively with restriction of oral food and fluids with continuous nasogastric suction and replacement of fluid and electrolytes, injectable proton pump inhibitors/H₂ blockers, and antibiotics. Some of the patients with severe necrotizing pancreatitis were shifted to intensive care units and managed with antibiotics and organ support as and when required. In select group, gastroenterology opinion was sought for and whenever needed interventional procedures were done.

OBSERVATION AND RESULTS

This retrospective and prospective study was conducted in 110 patients (55 patients were studied prospectively and 55 patients retrospectively) admitted in the various wards of Dr. S.N. Medical College and Associated Group of Hospitals with the diagnosis of acute pancreatitis.

Age and Sex Distribution

Out of 110 patients, 74 were male and 36 were female (male:female ratio - 2.23:1). The mean age at admission was 44.16 years (range 15-80 years). Maximum of the cases were in the age group between 31 and 40 years, i.e., 27.27% of total number of cases, followed by 18.18% in the age group 51-60 years (Table 1).

Clinical Presentation

The most common clinical presentation was epigastric pain (98.18%) with radiation to back in 41.82% pain, followed by

nausea (75.45%), vomiting (61.82%), abdominal distention (23.64%), fever (20%), and clinical jaundice (3.64%) (Table 2).

The most common etiology of acute pancreatitis was alcohol (46.05%) among males and biliary (61.7%) among females. The etiology was idiopathic in 23.68% of males and 26.36% of females (Table 3).

Out of 110 patients, 90 (81.8%) cases had Glasgow score <2 were predicted to have mild disease and 20 (18.2%) cases with Glasgow score >2 were predicted to have severe disease (Table 4).

Serum Amylase in Acute Pancreatitis

Serum amylase was raised >3 times the normal upper limit (normal value 0-90 IU/L) in 73.5% of cases with mild disease and in 75% of cases with severe disease (Table 5).

Serum lipase was done only in 22 cases and was found raised in 20 cases (90.9%).

Complications Grouped According to Glasgow Score

Out of 90 cases predicted to have mild disease, 21.1% developed local complications and none develop systemic complications. Out of 20 cases predicted to have severe disease, 85% develop local complications. The overall complications in 110 patients were 32.7% (Table 6).

Ultrasonography Findings of Hepatobiliary System

Liver was normal in 53.64% of cases, hepatomegaly was present in 25.45% of cases, fatty changes were present in 14.55% of cases, altered echotexture was present in 4.55% of cases, and cirrhosis was present in 1.83% of cases. Cholelithiasis was present in 30% of cases, sludge in gallbladder (GB) in 3.64% of cases, and echogenic bile in 0.9% of cases. In 3 (2.73%) cases, GB was absent. Choledocholithiasis was detected in 2.73% of cases and common bile duct (CBD) was dilated in 4.55% of cases (Table 7).

Ultrasound Findings of Pancreas

Gasses obscured the USG findings of pancreas in 7% of cases. Pancreas was enlarged in 90% of cases and echotexture was altered in 83% of cases. Peripancreatic collections in 37.2% cases are shown in Table 8.

X-ray Findings in Acute Pancreatitis

Pleural effusion was present in 10.9% of cases and sentinel loop sign in 12.7% of cases, multiple air-fluid levels in 2.73% of cases, gasless abdomen in 0.9% of cases, and cutoff sign in 0.9% of cases.

CT Scan of Pancreas in Acute Pancreatitis

CT scan was done in 36 cases (25 mild and 11 severe). Most of CT scans for acute pancreatitis were done in an

Table 1: Age and sex distribution in acute pancreatitis

Age	Male (%)	Female (%)	Total (%)
<20	6 (7.89)	2 (5.88)	8 (7.27)
21-30	13 (17.11)	4 (11.76)	17 (15.45)
31-40	23 (30.26)	7 (20.59)	30 (27.27)
41-50	11 (14.47)	5 (14.71)	16 (14.55)
51-60	11 (14.47)	9 (26.47)	20 (18.18)
61-70	9 (11.84)	2 (5.88)	11 (10)
>70	3 (3.95)	5 (14.71)	8 (7.27)
Total	76	34	110

Table 2: Clinical presentation of acute pancreatitis

Symptoms/signs	No. of patients (%)
Epigastric pain	108 (98.18)
Radiation to back	46 (41.82)
Nausea	83 (75.45)
Vomiting	68 (61.82)
Fever	20 (18.18)
Jaundice	4 (3.64)
Distention of the abdomen	26 (23.64)
Associated illness	26 (23.64)

Table 3: Etiology (and its gender breakup) of acute pancreatitis

Cause	Male (%)	Female (%)	Total (%)
Alcohol	35 (46.05)	1 (2.94)	36 (32.73)
Biliary	21 (27.63)	21 (61.76)	42 (38.18)
Idiopathic	18 (23.68)	11 (32.35)	29 (26.36)
Post-ERCP	2 (2.63)	0 (0.00)	2 (1.82)
Miscellaneous	0 (0.00)	1 (2.94)	1 (0.91)
Total	76	34	110

ERCP: Endoscopic retrograde cholangiopancreatography

Table 4: Total Glasgow score of patients with acute pancreatitis

Glasgow score	Severity	No. of cases (%)
≤2	Mild	90 (81.8)
>2	Severe	20 (18.2)
Total		110

around the 1st and 2nd week of the admission. Contrast enhancement was present in all the mild cases and 82% of cases with severe pancreatitis. Extension of peripancreatic inflammation was up to lesser sac in 44% of mild cases and 45% of cases with severe disease, up to C-loop of duodenum in 36% of mild disease and 7% in severe cases, up to lateral conal fascia in 16% of mild disease and 63.6% in severe disease, and up to anterior pararenal space in 16% of mild cases and 15% in severe cases. Single collections were detected in 24% of mild cases and 54.5% of severe cases. <30% of necrosis was present in 32% of mild disease and 16% of severe disease, 30-50% of necrosis was present in 81.8%

Table 5: Serum amylase in acute pancreatitis

Serum amylase (normal value 0-90 IU/L)	Mild	Severe	Total
	No. of patients N1 (%)	No. of patients N2 (%)	No. of patients N3 (%)
Raised (≥ 3 times normal)	66 (73.5)	15 (75)	81 (73.6)
<3 times normal	24 (26.5)	5 (25)	29 (26.4)
Total	90	20	110

Table 6: Complications grouped according to Glasgow score in acute pancreatitis

Glasgow score	Local complications	Systemic complications	Overall complications
	N1 (%)	N2 (%)	N3 (%)
≤ 2	19 (21.1)	0 (0)	19 (17.2)
>2	17 (85)	5 (25)	17 (15.5)

N₁ - Number of patients with local complications. N₂ - Number of patients with systemic complications. N₃ - Number of patients with overall complications

Table 7: Ultrasonography findings of hepatobiliary system in acute pancreatitis

Ultrasound findings	No. of patients (%)
Liver	
Normal	59 (53.6)
Hepatomegaly	28 (25.5)
Fatty change	16 (14.6)
Altered echotexture	5 (4.6)
Cirrhosis	2 (1.8)
GB	
Normal	65 (59.1)
Stone	33 (30.0)
Sludge	4 (3.6)
Echo bile	1 (0.9)
Biliary	
CBD	
Thick walled	3 (2.7)
h/o cholecystectomy	3 (2.7)
Normal	102 (92.7)
Stone/sludge	3 (2.7)
Dilated	5 (4.6)

CBD: Common bile duct, GB: Gallbladder

of severe disease, and none of the cases had >50% of necrosis (Table 9).

Balthazar Grading in CTSI

On the basis of CT scan findings of peripancreatic inflammation, collections, and pancreatic necrosis, Balthazar grade and CTSI were calculated. Tables 10 and 11 show that Balthazar Grade B and C and CTSI score 1-3 predominate in mild disease whereas Grade D and E and CTSI score 5-8 predominate in severe disease.

Complication Rate in Cases Grouped According to CTSI

In the current study, all the 6 patients with CTSI of 0-1 recovered without any systemic or local complications, 6 out of 11 patients with CTSI of 2-3 had local complications but no systemic complications, all the 17 patients with

Table 8: Ultrasound findings of pancreas in acute pancreatitis

CT abnormality	Mild (%)	Severe (%)	Total
Size			
Normal	3 (2.7)	0 (0)	3
Enlarged	80 (72)	19 (17.1)	99
Obscured	7 (6.3)	1 (0.9)	8
Altered echotexture			
Head	73 (65.7)	18 (16.2)	91
Body	74 (66.6)	18 (16.2)	92
Tail	28 (25.2)	17 (15.3)	45
Peripancreatic collections			
Present	26 (23.4)	15 (13.5)	41
Absent	64 (57.6)	5 (4.5)	69

Table 9: CT findings and severity of pancreatitis

CT findings	Mild (%)	Severe (%)
Contrast enhancement		
Present	25 (100)	9 (81.8)
Absent	0 (0)	2 (18.2)
Extent of peripancreatic inflammation		
Lesser sac	11 (44)	5 (45.4)
Posterior gastric wall	11 (44)	6 (54.5)
C-loop of duodenum	9 (36)	2 (18.2)
Lateral conal fascia	4 (16)	7 (63.6)
Anterior pararenal space	4 (16)	4 (36.4)
Peripancreatic collections		
None	17 (68)	1 (9.1)
Single	7 (28)	4 (36.4)
Multiple	3 (12)	6 (54.5)
Pancreatic necrosis		
None	17 (68)	0 (0)
<30%	8 (32)	9 (81.8)
30-50%	0 (0)	2 (18.2)
>50%	0 (0)	0 (0)

CT: Computed tomography

CTSI of 4-6 developed local complications but no systemic complications, but all the patients with CTSI of 7-10 had local as well as systemic complications. 16 out of 17 patients with CTSI of 0-3 were discharged after uneventful recovery and one patient left against medical advice. Out of 17 patients with CTSI of 4-6, 14 patients were discharged and 3 expired, but all the patients with CTSI of 7-10 developed systemic complications and expired (Table 12).

Use of Antibiotics in Acute Pancreatitis

Quinolones along with aminoglycosides and imidazoles were the most commonly used antibiotics in acute pancreatitis in the present study. Many patients were also

started on piperacillin and tazobactam and penem group of antibiotics, but the cephalosporins were used in only few of the patients with acute pancreatitis. None of the patients were given antifungal drugs.

Another significant aspect of treatment of pancreatitis is the start of antibiotic that is much talked about in literature also, but in our setting, all our patients on landing with us were put in various antibiotics right from the day 1 onward. Antibiotics were given for a short period of <10 days in most of the cases with mild disease and for a longer duration of >20 days in most of the cases with severe disease.

Surgical Management

Out of 110 patients, 18 patients underwent various surgical procedures for the management of local complications and to prevent the recurrence of acute pancreatitis. In mild disease, cholecystectomy was done in 4 patients and ERCP with stenting/sphincterotomy was done in 5 patients as preventive measures of acute pancreatitis. CT-guided needle aspiration was done to know the status of infection in 305 of patients with severe disease and one patient with mild disease. Three patients underwent necrosectomy, and in one patient, necrosectomy with cholecystectomy was done. In four

patients, laparotomy with external drainage was done. There was one patient who developed necrosis of the transverse colon and required laparotomy with transverse colostomy. In another patient, combined procedure of laparotomy, cholecystectomy, and external drainage was done (Table 13).

ICU Care in Acute Pancreatitis

None of the patients with mild disease required ICU care. 5 out of 20 patients with severe pancreatitis needed ICU care for about 10-20 days (Table 14).

Duration of Hospital Stay

In majority of patients (75.5%) with mild disease of acute pancreatitis, the hospital stay was <10 days whereas the hospital stay was >20 days in majority of patients from severe disease of acute pancreatitis. The average duration of hospital stay in mild disease was 8.22 days, and in severe disease, it was 13.5 days.

Outcomes in Patients of Acute Pancreatitis

Out of 90 patients with mild disease, 87 (96.7%) recovered uneventfully and were discharged, only 1 patient expired, and 2 left against medical advice. Among the patients with severe disease, 50% were discharged, 45% expired, and one patient left against medical advice (Table 15).

Table 10: Balthazar grading in acute pancreatitis

Balthazar grading	Mild	Severe	Total
	N1 (%)	N2 (%)	N3 (%)
A	0 (0)	0 (0)	0 (0)
B	9 (36)	0 (0)	9 (25)
C	7 (28)	1 (9.1)	8 (22)
D	6 (24)	4 (36.4)	10 (28)
E	3 (12)	6 (54.5)	9 (25)
Total	25	11	36

Table 11: CTSI of acute pancreatitis

CTSI	Mild	Severe	Total
	N1 (%)	N2 (%)	N3 (%)
0-1	6 (24)	0 (0)	6 (16.7)
2-3	12 (48)	0 (0)	12 (33.3)
4-6	7 (28)	9 (81.8)	16 (44.4)
7-10	0 (0)	2 (18.2)	2 (5.5)

CTSI: Computed tomography severity index

Table 12: Complication rate in cases grouped according to CTSI

CTSI	No. of cases	Local complications	Systemic complications	Overall complications
		N1 (%)	N2 (%)	N3 (%)
0-1	6	0 (0)	0 (0)	0 (0)
2-3	11	6 (24)	0 (0)	6 (16.67)
4-6	17	17 (100)	0 (0)	17 (100)
7-10	2	2 (100)	2 (100)	2 (100)
Total	36			

CTSI: Computed tomography severity index

Table 13: Surgical interventions and severity of pancreatitis

Surgical interventions	Mild disease	Severe disease
	N1 (%)	N2 (%)
CT-guided aspiration	1 (1.11)	6 (30)
ERCP/stenting	3 (3.33)	0 (0)
ERCP/sphincterotomy	2 (2.22)	0 (0)
Cholecystectomy	4 (4.44)	2 (10)
Necrosectomy	0 (0)	5 (25)
External drainage	0 (0)	4 (20)
others	0 (0)	1 (5)

CT: Computed tomography, ERCP: Endoscopic retrograde cholangiopancreatography

Table 14: Number of patients in ICU

Period of ICU care	No. of patients (%)
<10 days	1 (5)
10-20 days	4 (20)
>20 days	0 (0)

Table 15: Outcomes in patients of acute pancreatitis

No. of days	Mild	Severe	Total
	N1 (%)	N2 (%)	N3 (%)
Discharged	87 (96.7)	10 (50)	97 (88.2)
Expired	1 (1.11)	9 (45)	1 (9.1)
LAMA/absconded	2 (2.22)	1 (5)	3 (2.7)
Total	90	20	110

LAMA: Leave against medical advice

DISCUSSION

This retrospective and prospective study was conducted in 110 patients of acute pancreatitis in the Department of Surgery at Dr. S.N. Medical College and Associated Group of Hospitals.

The study revealed that the age incidence of acute pancreatitis is maximum in the age group of 31-40 years, which comprises 30.76% with a mean age of 44.16 years (range 18-80 years).

The overall male-to-female ratio is found to be 2.23:1.

Gallstones were found to be the most common etiology of acute pancreatitis followed by alcohol > idiopathic > post-ERCP > infections (mumps). In a study conducted by Imamura,¹ it was seen that the main etiological factors were gallstone disease (51%) and alcohol abuse (15%) whereas 10% of cases were idiopathic.

It was noticed that alcohol was more common etiology of acute pancreatitis among males, and biliary etiology was more common among females. A study conducted by Chang *et al.*² also showed that the major cause of acute pancreatitis in females was gallstones while alcohol is leading cause in males. A study conducted by Andersen *et al.*³ also shows that both cholelithiasis and alcohol were main etiologic factors in the more northern countries studied whereas cholelithiasis alone predominated in the more southern ones.

The symptomatology of acute pancreatitis shows that epigastric pain was the most common presentation at admission, followed by nausea > vomiting > abdominal distension > radiation of pain toward back > jaundice.

The study shows that increased level of serum lipase is more sensitive and specific than serum amylase for the diagnosis of acute pancreatitis.

Glasgow score was applied over all the patients of study group, the predicted course of the disease evaluated, through the Glasgow scoring system was found to be authentic. Thus, Glasgow scoring system is fairly reasonable method to predict the severity of acute pancreatitis and helps in the categorization of severity of illness.

Ultrasonography comes out to be a useful initial investigation in the course of acute pancreatitis and found useful to detect gallstones, CBD stones, pancreatic swellings, and peripancreatic collections.

CT scan of the abdomen remains the gold standard for differentiating the morphological features of pancreas

at an early as well as late stage of pancreatitis, and CTSI correlated well with the morbidity in acute pancreatitis in forms of systemic, local complications and duration of stay in hospital. Furthermore, CT scan was done to diagnose acute pancreatitis when clinical and biochemical parameters remain inconclusive.

The overall rate of complications in 110 patients was 32.7% (36 out of 110). The local complications were in the form of acute fluid collections, pancreatic necrosis, and pancreatic abscess, but 5 patients had systemic complications in the form of the acute renal failure and respiratory failure.

Antibiotics were started in all the patients from the very first day of admission, and the duration of antibiotics was <10 days in 85% of cases with mild disease and >20 days in 20% of cases with severe disease. Six patients with severe acute pancreatitis expired within 10 days. Hence, the course of antibiotic was prolonged (more than 20 days) in severe acute pancreatitis as compared to mild acute pancreatitis.

Gastroenterology opinion was sought in many patients, and ERCP with sphincterotomy/stenting was done in 5 cases of acute pancreatitis. Four patients with mild acute pancreatitis underwent cholecystectomy (open/laparoscopic) within 4-17 days of the attack, but cholecystectomy was done in severe necrotizing pancreatitis only as a combined procedure with necrosectomy or external drainage.

About 30% of patients with severe necrotizing disease underwent CT-guided needle aspiration to know the status of infection. Necrosectomy, open external drainage, and transverse colostomy were done to deal with the local complications.

ICU care was needed in 25% of cases with severe acute pancreatitis. A study conducted by Halonen *et al.*⁴ showed that in patients with severe acute pancreatitis, advanced age, history of continuous medication, and need for dialysis, mechanical ventilator support and pressor support predict fatal outcome and thus should be taken into account in clinical evaluation.

Average duration of hospital stay was 8.22 ± 5.82 days in mild disease and 13.5 ± 12.77 days in severe disease.

Out of the 110 patients, we studied that mild acute pancreatitis had mortality of 1.11% and severe acute pancreatitis had mortality of 45%. A study conducted by Andersen *et al.*³ revealed that mortality was high for necrotic pancreatitis, and there was no relationship between mortality and age. Furthermore, a study conducted by Gullo *et al.*⁵ showed that there is no significant difference in mortality in relation to alcohol or biliary etiology.

CONCLUSION

- Incidence of acute pancreatitis is in the age group of 31-40 years.
- Biliary tract stone disease and alcohol are the most common causes of acute pancreatitis.
- Acute pancreatitis is more common among males (male:female - 2.23:1).
- The most common presentation of acute pancreatitis is epigastric pain followed by nausea and vomiting.
- Glasgow prognostic scoring system is fair enough to categorize and predict course of illness, thus enabling proper management of the patients.
- Serum amylase and lipase are the first line of investigations to diagnose acute pancreatitis but are not useful to predict the course of disease.
- Ultrasonography of the abdomen should be the initial investigation for the patients with acute pancreatitis and can diagnose gallstones, CBD stones, pancreatic swelling, and collections. If it is doubtful or shows the signs of local complications, one should go for CT scan of the abdomen.
- CT scan remains the gold standard investigation for morphological evaluation of acute pancreatitis, and CTSI correlates well with morbidity in acute pancreatitis.
- Use of antibiotics starts at the outset in our setup and in most of the setups irrespective of diverse theoretical data being put up.
- Appropriate supportive therapy is the mainstay of management of acute pancreatitis in even those with severe acute necrotizing pancreatitis.
- Appropriate and timely help and intervention by gastroenterology colleagues serves a good purpose in overall management of these patients.
- Local complications of acute pancreatitis should be managed with appropriate surgical/interventional procedure such as CT-guided aspiration, necrosectomy, and open external drainage.
- The role of surgeries such as cholecystectomy and ERCP with stenting/sphincterotomy is useful to remove the cause and prevent the recurrence of biliary acute pancreatitis.
- ICU care requiring ventilatory support is needed in many of the patients with severe acute pancreatitis.
- Mortality in severe acute pancreatitis is as high as 45% whereas mortality in mild acute pancreatitis is low (1.1%).

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