

Clinical Pattern and Management of Acute Pancreatitis – Our Experience

MM HASAN^a, SZ LAILA^b, MH MAMUN^c

Summary:

Background: Acute pancreatitis (AP) is an acute inflammatory condition of the pancreas that may extend to local and distant extrapancreatic tissues. It is a life-threatening disease that has many causes, few effective treatments, numerous serious complications, and an often unpredictable course. The objectives of this study are to develop our knowledge about presentation and diagnosis of acute pancreatitis, to assess the patient with acute pancreatitis accurately and to develop a standard management protocol.

Methods: This observational study was carried out in Combined Military Hospital (CMH) Dhaka, CMH Momenshahi and CMH Ghatail during the period of June 2007 to December 2010. A total 25 patients of Acute Pancreatitis were studied retrospectively, evaluated and managed.

Introduction:

Acute pancreatitis is a complex, life-threatening disease that has many causes, few effective treatments, numerous serious complications, and an often unpredictable course. Incidence varies from 4.5 to 79.8 per 100,000 per year in different countries. This variation is due to different diagnostic criteria, geographical factors, and changes over time.¹ The disease may range from a mild, self-limiting inflammatory process to extensive necrosis

Results: In this study 25 patients 19 (76%) were male (male : female = 3.17:1), age range 08 to 55 years, Mean age – 38.92 years. Maximum number of the patients fall into fourth and fifth decades. All patients presented with abdominal pain, specially in upper abdomen. Laboratory test revealed leucocytosis and high serum and urinary amylase, positive findings in Ultrasonogram and CT scan found in all patients. Gall stone was the leading cause 14 (56%). 20 (80%) patient developed some form of complications. 24 patients were treated conservatively. Average hospital stay was 15.52 days. Serious regional and systemic involvement in Acute Pancreatitis causes multiple organ or system failure.

Conclusion: Early diagnosis and effective treatment can significantly reduce the morality and morbidity.

Key words: Acute Pancreatitis, Clinical pattern and management

(J Bangladesh Coll Phys Surg 2013; 31: 122-127)

and multi-organ failure. In 1974 Ranson et al² identified 11 objective clinical and laboratory measurements available within 48 hours of admission each of which had value in predicting severity. Acute pancreatitis is a neglected disease in our country. We are not aware of the actual scenario regarding the incidence, prevalence, cause or mortality rate of this treatable disease. Studies suggest that outcome of an attack of acute pancreatitis can be improved by early treatment and therefore, urgent treatment of severe acute pancreatitis will reduce morbidity and mortality.³

In recent years, treatment of severe acute pancreatitis has shifted away from early surgical treatment to aggressive intensive care. This observational retrospective study has been carried out in Combined Military Hospital (CMH) Dhaka, CMH Momenshahi and CMH Ghatail during the period of June 2007 to December 2010 which are fully supported with ICU and laboratory facilities. The purpose of this study were to develop knowledge about presentation and diagnosis of acute pancreatitis, assess the patient with acute

- Dr. Md Mahboob Hasan, FCPS, Major, Classified Specialist in Surgery, CMH Ghatail, Shaheed Salahuddin Cantonment, Ghatail, Tangail
- Dr. Syeda Zeenat Laila, FCPS, Major, Graded Specialist in Paediatrics, CMH Ghatail, Shaheed Salahuddin Cantonment, Ghatail, Tangail
- Dr. Md Monjur Hasan Mamun, MBBS, Registrar, Dept of Surgery Unit 3, Dhaka Medical College Hospital Dhaka.

Address of Correspondence: Md Mahboob Hasan, FCPS, Major, Classified Specialist in surgery, CMH Ghatail, Shaheed Salahuddin Cantonment, Ghatail, Tangail, E-mail: drmahboob_surg@yahoo.com, Cell: 01723660642

Received: 12 September, 2012 **Accepted:** 17 February, 2013

pancreatitis accurately for surgical intervention. And to develop a standard management protocol for patient with acute pancreatitis.

Materials and Methods:

This observational study has been carried out in Combined Military Hospital (CMH) Dhaka, CMH Momenshahi and CMH Ghatail during the period of June 2007 to December 2010. A total 25 patients of acute pancreatitis were studied retrospectively. All patients were defence personnel and their entitled families. A detailed history was taken from the patients. Physical findings were recorded properly. Diagnosis were made by symptom analysis, physical examination, laboratory investigations and radiology and imaging study. Patients with chronic pancreatitis and other pancreatic disorders were excluded from this study.

All the patients were followed up regularly during their stay in the hospital and as out patient.

Results:

The youngest patient of this series was 08 years and oldest was of 55 years. Male 19 (76%) and Female: 06 (24%); Male: Female = 3.17: 1; Maximum number of the patients fall into fourth and fifth decades. Mean age – 38.92 years, Median age – 40 years (Table-I). All patients presented with abdominal pain, specially in upper abdomen (68%) (Figure-I). It was mainly dull aching in nature (72%), but 28% patients had throbbing pain. All patients of acute pancreatitis complained of anorexia (100%). 17 patients presented with nausea and vomiting (68%). One patient of acute pancreatitis was associated with 36 weeks pregnancy. All patients had abdominal tenderness. Ascites was present in 05 patients (20%). 10 patients (40%) had features of paralytic ileus. 07 patients had (28%) pleural effusion. (Table-II).

Investigations were aimed at confirming the diagnosis. Laboratory test revealed leucocytosis, high serum and

urinary amylase and raised C – reactive Protein (CRP) were found in all patients. Serum Calcium level was decreased in 09 patients(36%). (Table – III). All the patients were investigated with plain X Ray abdomen, USG of whole abdomen, C.T. scan of abdomen. ERCP was done in 14 patients. (Table – IV) (Table – V). 07 (28%) patients had pleural effusion, 05 (20%) patients developed electrolytes imbalance and 01(4%) patient had severe respiratory distress impending to ARDS and required ventilatory support. Pseudocyst formation occurred in 02 (8%) patients. 03 (12%) patients had hyperglycaemia and controlled with insulin; subsequently they developed diabetes mellitus, 03 (12%) patient developed septicaemia and managed with antibiotics and supportive care (Table – VI). 24 patients were treated conservatively. All patients were managed in intensive care unit for better support. As there was no HDU setup in CMHs, some of them though did not strictly fulfil the admission criteria in ICU were managed in ICU rather than in general wards. One patient required surgery as she presented with acute pancreatitis with 36 weeks pregnancy with foetal distress. Emergency laparotomy was done. The baby was delivered by caesarean section and careful peritoneal toileting was done and a drain was kept in situ.

All the patient were kept nil by mouth and nasogastric suction. Intravenous fluid, antibiotics, analgesics and anti spasmodic were prescribed.

All 14 patients having gall stone were operated. 03 in the same admission and other 11 were treated by interval cholecystectomy. All cholecystectomy were done laparoscopically.

Patients with some form of complications took more time to recover. Average hospital stay was 15.52 days. All were back to their normal life and work without any significant problem during the period of follow up,

Table-I

Age and Sex distribution of the acute pancreatitis patients (n=25)

Age (Years)	<20	20–30	31–40	41–50	51years & above	Total	Percentage (%)	M : F
Male	01	02	07	07	02	19	76	
Female	01	01	02	01	01	06	24	
Total	02	03	09	08	03	25	100	3.17:1

Mean age – 38.92 years

Median age – 40 years

Table-II

<i>Physical signs in acute pancreatitis patients (n=25)</i>		
Signs	No. of patients	Percentage
Abdominal tenderness	25	100
Paralytic ileus	10	40
Ascites	05	20
Fever	20	80
Anaemia	21	84
Jaundice	02	08
Pleural effusion	07	28

Table-III

<i>Laboratory findings in acute pancreatitis patients (n=25)</i>		
Laboratory test	No. of patients	Percentage
Leucocytosis	25	100
High serum and urinary amylase	25	100
Abnormal liver function test	05	20
Raised CRP	25	100
Blood culture positive	03	12
Decreased serum calcium	09	36

Table-IV

<i>Findings of radiological study in acute pancreatitis patients (n=25)</i>			
Name of the Investigations	Findings	No. of patients	Percentage
1. Plain			
X- Ray abdomen	a) Isolated dilated gas filled loop of Jejunum (sentinel loop)	07	28
	b) Isolated gas filled duodenum	05	20
	c) Gas filled hepatic and splenic flexures separated by gas less transverse colon (colon cut off sign)	05	20
2. X-Ray Chest (P/A view)	a) Left sided pleural effusion	05	20
	b) Bilateral pleural effusion	02	08
3. CT Scan	a) Diffusely enlarged Pancreas with obliterated boundaries	25	100
	b) Fluid collected in peri- and retro pancreatic space	10	40
	c) Gall stone	14	56
4. ERCP (Done in 14 patients)	Dilated CBD	02	14.29

Table-V

<i>Findings of USG of whole abdomen of acute pancreatitis patients (n=25)</i>		
Findings	No. of patients	Percentage
a) Acute pancreatitis	25	100
b) Ascites	02	08
c) Gall stone	14	56

Table-VI

<i>Complication of Acute Pancreatitis (n=25)</i>		
Complications	No. of patients	Percentage
Pleural effusion	7	28
Electrolytes imbalance	5	20
Septicaemia	3	12
Ascites	2	8
Pseudocyst formation	2	8
ARDS/Pulmonary complication	1	4
Hyperglycaemia	3	12

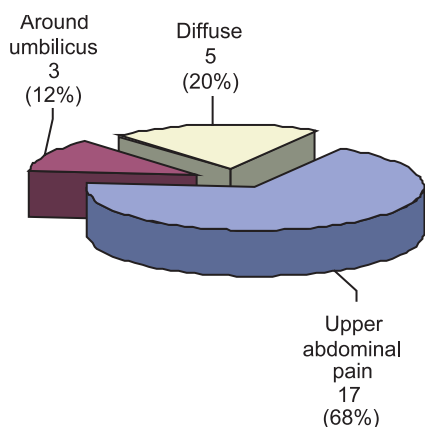


Fig-1: Site of pain of the acute pancreatitis patients (n=25)

except two patients who reported with recurrent attack and subsequently managed without any disability.

Discussion:

Acute pancreatitis is responsible for 3% of hospital admissions with acute abdominal pain.⁴ Acute pancreatitis can affect all age groups, although it is rare in children. The mean age at presentation is usually in the sixth decade. In this study maximum number of the patients fall into fourth and fifth decades and mean age was 38.92 years.

In developed countries, the most common cause of acute pancreatitis is alcohol abuse. A recent study suggests that 44% of patients have alcohol as the primary risk factor for acute or chronic pancreatitis.⁵ Several studies have reported that smoking is an independent risk factor for developing acute pancreatitis.⁶ Pancreatitis occurs in approximately 5% of ERCPs, with a range from 2% to 7% depending on the criteria for defining the pancreatitis, the type of procedure, and the experience of the endoscopist.⁷ The precise pathogenesis of gallstone induced pancreatitis continues to be debated. In this study, 14 (56%) patients had gall stone; none of the patients were alcoholic.

Pain is usually the cardinal symptom. It develops quickly, reaching maximum intensity within minutes. It may persist for 12 – 48 hours or more. Location of pain is usually in mid epigastrium but may be localized or diffuse. There is radiation to the back in about 50% of cases.⁸ Nausea, vomiting, retching are usually marked accompaniments. Hiccup can be present. Sometimes patients may present with features of pulmonary, renal,

cardiocirculatory insufficiency. The spectrum of appearance on admission ranges from patients who appear completely well to those who are already gravely ill with profound shock, toxic and confused. In our study, all patients presented with abdominal pain specially in upper abdomen. The pain was sudden onset in 15 patients and in 10 patients onset was gradual.

Proper clinical evaluation and some biochemical, hemodynamic parameters and radiological features are necessary for early diagnosis. Multiple factor prognostic scoring systems have proved valuable. Some important scoring system are Ranson system, Glasgow systems, APACHE II score. In this study, initially these patients were evaluated by Ranson's criteria. 13 patients (52%) had mild attack (<3 signs), 07 patients (28%) had 3-4 signs, 03 patients had 5-6 signs and 02 patients had more than 6 signs.

The serum amylase concentration rises to more than 2½ times normal within 6 hours after the onset of an acute episode. It generally remains elevated for several days. Serum amylase level in excess of 1000 IU/dl occur early in the attack in 95% of patients with biliary pancreatitis and 85% of patient with alcoholic pancreatitis.⁹ C-reactive protein (CRP) is an acute phase protein, raised in many condition eg. major trauma, sepsis, acute pancreatitis. CRP is of no value in the diagnosis of acute pancreatitis but sharply rises in pancreatic necrosis and that is a useful early marker of severity of pancreatitis. Serum calcium levels fall in about 25% of cases, and that signifies severe pancreatitis. Hypertriglyceridemia is reported to cause 1 – 4 % of acute pancreatitis. It is also implicated in more than half of gestational pancreatitis cases.¹⁰ In this study all patients had high serum and urinary amylase and decreased serum calcium level were found in 9 (36%) patients.

In about two thirds of the cases, a plain film is abnormal. The most frequent finding is isolated dilated gas filled segment of gut (sentinel loop). The “colon cut off” sign may present when gas filled hepatic and splenic flexures are separated by gasless transverse colon. Radiological investigation such as X Ray abdomen, USG and CT Scan of abdomen were done in this study. Abnormal findings (sentinel loop, isolated gas filled duodenum, colon cut off sign) were present in 17 films. The chest radiographs may reveal a pleural effusion that is more

common on the left side.¹¹ In severe pancreatitis extensive perihilar oedema may suggest development of adult respiratory distress syndrome. In this study, pleural effusion was found in 07 patients (28%).

Ultrasonography is being used more frequently to diagnose acute pancreatitis. It is recommended that all patients with acute pancreatitis should undergo ultrasound within 24 hours of admission. All reference studies confirm reduction in morbidity and mortality with early duct clearance. Early ERCP and urgent cholecystectomy within 3-9 days of admission for better outcome.¹² Contrast enhanced CT Scan is the 'gold standard' for establishing the diagnosis of necrotizing pancreatitis. The severity of abnormalities on an unenhanced CT is graded quantitatively and is combined with the severity of pancreatic necrosis on an enhanced CT to form the CT severity index.¹³ In this study ultrasonography and CT scan was done in all patients that revealed diffusely enlarged pancreas, with obliterated boundaries. Fluid collected in peri- and retro pancreatic space in 10 patients and gall stone in 14 patients (56%). ERCP was done in 14 patients who have gall stone. 02 patients had dilated CBD (sphincterotomy done).

Several major gastroenterological and surgical societies have issued guidelines on how to manage acute pancreatitis, based on evidence from high-quality randomized trials and nonrandomized studies as well as on expert opinion.¹⁴ The UK guidelines for the management of acute pancreatitis were formulated and released by the British Society of Gastroenterology (BSG) in 1998. but compliance is suboptimal in other developed countries, according to several studies,^{15, 16}

Firstly, acute pancreatitis is stratified according to severity. Glasgow-Imrie scoring together with C-reactive protein are recommended by the BSG for stratification of severity of acute pancreatitis. 'BISAP' a new five-point scoring system,¹⁷ was recently prospectively validated. 'BISAP' is an acronym for the five markers it is based on, each of which has been shown to predict severe illness in acute pancreatitis: (1) Blood urea nitrogen level > 25 mg/dl, (2) Impaired mental status, (3) SIRS, (4) Age > 60 years, (5) Pleural effusion.

The presence of three or more of these factors correlates with higher risk of death, organ failure, and pancreatic necrosis.¹⁸

Surgery has little use in the early management of acute pancreatitis. Patients who fail to improve despite optimal medical treatment or patients who push the Ranson score even, should be taken to the operating room. Surgery in these cases may lead to a better outcome or confirm a different diagnosis. One study suggested a minimally invasive step-up approach was associated with less complication, although mortality was similar in the open and minimally invasive groups.¹⁹

Advances in critical care, antibiotics and interventional radiology have played complementary role in improving the outcomes.²⁰ Infants and toddlers with acute pancreatitis present with fewer classical symptoms and are managed differently from older children.²¹ Patients of this study were treated conservatively in Intensive Care unit for massive support. One patient required surgery as she reported with acute pancreatitis with 36 weeks pregnancy with foetal distress.

The role of antibiotics in the management of early acute pancreatitis is controversial. Despite a number of clinical trials and meta-analyses, a clear consensus still does not exist.²² Antibiotics may prevent death by preventing nonpancreatic infections rather than by preventing infection of necrotic pancreatic tissue.²³ Acute pancreatitis is a hypercatabolic state, and early nutrition should be initiated with a therapeutic intent. In patients with mild acute pancreatitis, oral feeding can be considered within 24-72 hours of disease onset. A recent study has shown that initiating re-feeding with low fat soft diet is safe and can reduce hospitalization, when compared with clear liquid diet.²⁴ In biliary pancreatitis, a sphincterotomy can relieve the obstruction. In cases of mild gallstone pancreatitis, one small study of 50 patients found early gallbladder removal was safe and associated with shorter hospital stay.²⁵ Delay in cholecystectomy was associated with an increase in biliary complications in patients with non-necrotizing biliary acute pancreatitis.²⁶ Early confirmation of etiology and ERCP within 48 hours with CBD stones clearance followed by urgent cholecystectomy within 3-9 days gave excellent outcome.¹² In this study early (after subsiding the acute phase) ERCP was done in 14 patients having gall stone to evaluate the pancreaticobiliary system and sphincterotomy was done in two patient who had dilated CBD. Cholecystectomy was done in 03 patients in the same admission and other 11 were treated by interval cholecystectomy.

The median hospital stay for the severe cases was 16 days (range 2-304) in a study of 186 patients.⁴ In this study it was 15.52 days.

Conclusion:

Acute pancreatitis may range from a mild to a life-threatening condition. Establishing a rapid diagnosis through laboratory testing and radiologic studies is important. As the clinical pattern of acute pancreatitis varies in different patients, failure of diagnosis may lead to considerable morbidity and even death of the patient. In patients with signs of severe disease at onset or clinical deterioration after hospital admission, consultation with a gastroenterologist and a surgeon is recommended. Educating patients about the disease and advise them to avoid alcohol and to discontinue any risk factor, such as fatty meals and abdominal trauma is also helpful.

References:

1. Kingsnorth A, O'Reilly D. Acute pancreatitis. *BMJ* 2006;332:1072-1076.
2. Ranson JHC, Rifkind KM, Turner JW. Prognostic signs and nonoperative peritoneal lavage in acute pancreatitis. *Surg Gynecol Obstet* 1976; 143: 209-19.
3. Ahad MA, Ahmed KU, SM Kamal, ARM Saifuddin Ekram, Study of Prognostic Factors of Acute Pancreatitis in A Teaching Hospital. *MEDICINE* 2011; 12 : 21-25
4. Toh SKC, Phillips S, Johnson CD. A prospective audit against national standards of the presentation and management of acute pancreatitis in the South of England. *Gut* 2000;46:239-243
5. Whitcomb DC, Yadav D, Adam S, et al. Multicenter approach to recurrent acute and chronic pancreatitis in the United States: the North American Pancreatitis Study 2. *Pancreatol*. 2008; 8(4-5):520-31.
6. Talukdar R, Vege SS, Recent developments in acute pancreatitis, *Clin Gastroenterol Hepatol* 2009;7(11 Suppl): S3-9.
7. Cooper ST, Slivka A. Incidence, risk factors, and prevention of post-ERCP pancreatitis. *Gastroenterol Clin North Am* 2007;36(2):259-76
8. Russel RCG, Williams NS, Bulstrode, Christopher Jk. Bailey and Love's Short practice of Surgery. Arnold Publishers Ltd, (London), 2008, 25th ed. 1130 1153
9. Gerard M. Doherty, Lawrence W. Way. Laboratory findings of pancreatitis. *Current Surgical Diagnosis and Treatment*. McGraw-Hill, 2006, 12 th ed. 602 - 29
10. Wayne Tsuang, Udayakumar Navaneethan, Luis Ruiz et al. Hypertriglyceridemic Pancreatitis: Presentation and Management. *Am J Gastroenterol* 2009; 104:984-991
11. Raghu MG, Wig JD, Kochhar R, et al. Lung complications in acute pancreatitis. *JOP* 2007; 8(2):177-85
12. Z. S. Matar, the Clinical Pattern Of Acute Pancreatitis, The Al Kharj Experience. *The Internet Journal of Surgery*. 2007; Vol 11 No 1. DOI: 10.5580/761
13. Mitchell S. Cappell, MD, PhD. Acute Pancreatitis: Etiology, Clinical Presentation, Diagnosis, and Therapy. *Med Clin North Am*. 2008; 92: 889-923.
14. Forsmark CE, Baillie J, AGA Institute technical review on acute pancreatitis. *Gastroenterology* 2007; 132:2022-2044
15. Barnard J, Siriwardena AK. Variations in implementation of current national guidelines for the treatment of acute pancreatitis: implications for acute surgical service provision. *Ann R Coll Surg Engl* 2002; 84:79-81.
16. Connor SJ, Lienert AR, Brown LA, Bagshaw PF. Closing the audit loop is necessary to achieve compliance with evidence-based guidelines in the management of acute pancreatitis. *N Z Med J* 2008; 121:19-25.
17. Wu BU, Johannes RS, Sun X, et al. The early prediction of mortality in acute pancreatitis: a large population-based study. *Gut* 2008; 57:1698-1703.
18. Singh VK, Wu BU, Bollen TL, et al. A prospective evaluation of the bedside index for severity in acute pancreatitis score in assessing mortality and intermediate markers of severity in acute pancreatitis. *Am J Gastroenterol* 2009; 104:966-971.
19. Van Santvoort HC, Besselink MG, Bakker OJ, et al. A step-up approach or open necrosectomy for necrotizing pancreatitis. *N Engl J Med* 2010;362(16):1491-502.
20. Doctor N, Philip S, Gandhi V, et al. Analysis of the delayed approach to the management of infected pancreatic necrosis. *World J Gastroenterol* 2011;17(3):366-71.
21. Park Alexander J, Latif Sahibzada U, Ahmad Mahwish U, et al. A Comparison of Presentation and Management Trends in Acute Pancreatitis Between Infants/Toddlers and Older Children, *Journal of Pediatric Gastroenterology & Nutrition*: 2010; 51(2): 167-170
22. Rupjyoti Talukdar and Santhi Swaroop Vege. Recent Developments in Acute Pancreatitis. *Clinical Gastroenterology and Hepatology* 2009; 7(11S): S3-S9
23. Tyler Stevens, Mansour A, Parsi R, Mattheu Walsh. Acute pancreatitis Problems in adherence to guidelines, *Cleveland Clinic Journal of Medicine*. 2009; 76 (12): 697-704
24. Sathiaraj E, Murthy S, Mansard MJ, et al. Clinical trial: oral feeding with a soft diet compared with clear liquid diet as initial meal in mild acute pancreatitis. *Aliment Pharmacol Ther* 2008; 28:777-781.
25. Aboulian A, Chan T, Yaghoubian A, et al. Early cholecystectomy safely decreases hospital stay in patients with mild gallstone pancreatitis: a randomized prospective study. *Ann Surg* 2010; 251(4): 615-9.
26. Nebiker CA, Frey DM, Hamel CT, et al. Early versus delayed cholecystectomy in patients with biliary acute pancreatitis. *Surgery* 2009;145:260-264.