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Review Article

Acute pancreatitis

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ABSTRACT

Acute pancreatitis is a common medical problem. Initial phase of acute pancreatitis is characterized by inflammation. This is caused by release of cytokines and other pro inflammatory mediators. These further cause vasodilatation, intravascular volume depletion, and end organ hypoperfusion. The etiology can be varied but common causes are biliary (stone in CBD) and alcohol. Other causes are drugs, infections, trauma, idiopathic, post ERCP etc. Patients with severe pancreatitis have high risk of mortality (10%) which can go upto 30% if necrosis gets infected, which occurs in about 40% patients. Further, persistent organ failure increases the mortality up to 34–55% as compared to 0.3% with transient organ failure. Traditionally as per Atlanta classification, acute pancreatitis has been classified as mild or severe depending upon organ failure or local complications. Acute pancreatitis is a hyper-catabolic state. Moreover some of these patients may be malnourished to begin with (alcoholics). Thus their nutritional requirements are much more than ordinary person. There are good quality studies available to show that in absence of cholangitis, there is no benefit of doing early ERCP. Also, technically it is more difficult to do in such situations, and procedure related complication may be more. If in doubt, it may be worthwhile to do endoscopic ultrasound to document the presence of CBD stone before attempting to cannulate the CBD.

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1. Introduction

Acute pancreatitis is a common medical problem. The etiology can be varied but-common causes are biliary (stone in CBD) and alcohol. Other causes are drugs, infections, trauma, idiopathic, post ERCP etc.

Majority of these patients have mild disease (85%) and rest are severe (15%). Patients with severe pancreatitis have high risk of mortality (10%) which can go upto 30% if necrosis gets infected, which occurs in about 40% patients. Further, persistent organ failure increases the mortality upto 34–55% as compared to 0.3% with transient organ failure. In this

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article we will discuss major issues related to management of severe acute pancreatitis.

2. Classification of acute pancreatitis

Traditionally as per Atlanta classification, acute pancreatitis has been classified as mild or severe depending upon organ failure or local complications. Recently, modification to Altanta classification has been accepted, in which additional moderate pancreatitis class has been described.[1] Key differentiating feature is that this new moderate group has local complications with no persistent organ failure. This has been well validated, as there are differences in morbidity and mortality in the three groups.

2.1. *Modified Atlants classification of acute pancreatitis*

A Mild acute pancreatitis

Acute pancreatitis without persistent organ failure and local complications.

B Moderately severe acute pancreatitis

Acute pancreatitis without persistent organ failure but with local complications (pancreatic necrosis and/or per pancreatic collections).

C Severe pancreatitis: Pancreatitis with necrosis and persistent organ failure

3. Severity assessment

It is extremely important to have an assessment of severity and prediction of development of severe pancreatitis. This may not have any impact on specific therapeutic intervention, as we do not have any specific drug for treatment of acute pancreatitis, but it helps in prognostication and thus patient counseling and in triaging the patient. This topic has been recently reviewed in Indian J of Gastroenterology.[2]

Conventionally Ranson's criteria, Glasgow score, APACHE II were being used but are complicated and most are applicable at 72 h of illness. No criterion has been able to balance simplicity with accuracy.[10] Recently new tools i.e. Bedside Assessment for Severity in Acute Pancreatitis or BISAP and persistent SIRS was introduced to predict outcomes in acute pancreatitis (Table 1).

One component of the BISAP is SIRS (as mentioned in Table 2). Several Prospective Cohort studies of Acute Pancreatitis have shown that persistent SIRS lasting 48 h or more is associated with increased risk of necrosis, multi organ failure, death.[8,9] A recent study of cumulative SIRS measured over consecutive days as a reliable predictor of late onset persistent organ failure.

If one looks at various criterias used for grading severity of acute pancreatitis, there is very little to differentiate in superiority of one over the other (Table 3). Still clinical assessment remains most easy to follow on bed side and helps in decision making, triaging.

Table 1 – BISAP score and its associated mortality.

Parameters	Value	If present, points allocated
Serum BUN	>25	1
Mental status	Impaired	1
SIRS	Present	1
Age of the patient	<60 years	1
Pleural effusion	Present	1
	Total score	**Mortality (%)**
	0	0.20
	1	0.60
	2	2
	3	5–8
	4	13–19
	5	22–27

4. Early fluid resuscitation

Initial phase of acute pancreatitis is characterized by inflammation. This is caused by release of cytokines and other pro inflammatory mediators. These further cause vasodilatation, intravascular volume depletion, and end organ hypoperfusion. Patients of acute pancreatitis have significant fluid loss in third space. This is evident by increased hematocrit. This may not clearly show on CVP measurement. It is postulated that in necrotizing pancreatitis, this hemoconcentration will increase the relative ischemia of the pancreatic bed and further increase the necrosis and thus worsening of the condition of the patient. In view of this, intensive fluid resuscitation is the cornerstone of therapy during the early management of acute pancreatitis. Underresuscitation is associated with increased morbidity and mortality.

Issues have been how much fluid is best and what fluid to give.

Early fluid resuscitation reduces morbidity among patients with acute pancreatitis.[3] This study from Mayo recommended infusion rates of 250–300 ml/h or enough to produce atleast 0.5 ml/kg/h urine. This means infusing almost 1–2 L of fluid in emergency room itself. This rate needs to be adjusted according to patient's age, weight, comorbid conditions like heart, respiratory and renal status.

In patients with cardiac, renal disease and those with advanced age it should be given cautiously and under constant monitoring for fluid overload.

There have been two studies which have challenged the use of such high amount of fluids citing the risk of development of fluid overload.[4] First was a retrospective study of 99

Table 2 – SIRS criteria, defined by the presence of two or more parameters value.

Temperature<36 °C or >38 °C
Heart rate>90 per min
Respiratory rate >20 per minute or $PaCO_2$ <32 mm Hg
White blood cell count<4000 cells/mm^3 or >12,000 cells/mm^3 or 10% bands

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