

Octreotide in Acute Pancreatitis – have it or not?

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The study was conducted in the Department of Surgery, Mayo Hospital, Lahore from March 2003 to January 2006. The objective of the study was to see the beneficial effects of Octreotide in acute pancreatitis. Thirty five patients who were diagnosed as acute pancreatitis were divided in two groups. In group A (controlled) Octreotide was given in a dose of 100µgm t.i.d subcutaneously for 7-10 days along with other measures. In group B (uncontrolled) patient were managed without Octreotide. Patients were evaluated in terms of abscess formation, haemorrhage, pseudocyst formation and mortality or uneventful recovery in both groups. No beneficial effect of Octreotide was observed in controlled group as compared to uncontrolled group. So we don't recommend the routine use of Octreotide in patients with acute pancreatitis.

Key words: Octreotide, somatostatin, acute pancreatitis

Acute pancreatitis is common. The disease has increased much in a better way¹. Acute pancreatitis has been defined as pancreatic inflammation of an otherwise healthy gland that may be followed by clinical and biological restitution of the gland if the primary cause is eliminated².

The clinical presentation of acute pancreatitis is quite variable and this can lead to confusion and uncertainty in diagnosing acute pancreatitis, which is essentially a diagnosis of exclusion³. Aetiology can be detected in 80% cases by history, presentation and focus investigations⁴.

Octreotide is a synthetic analogue of somatostatin a tetrapeptide secreted by D cells of the pancreas. Somatostatin is a 14-amino acid peptide hormone that suppresses secretions from the exocrine pancreas among its several effects⁵. Synthetic somatostatin analogues, such as octreotide, lanreotide and vapreotide have been used in clinical practice to reduce pancreatic exocrine secretions. However, controversy still exists about their beneficial results.

The role of Octreotide in the management of pancreatitis by inhibiting its exocrine secretion has been studied extensively and very variable results have been concluded. This study aims to establish whether somatostatin and its analogues offer benefits in acute pancreatitis in terms of complication rates, mortality and to define which patient groups are more likely to derive such benefits.

Patients and methods:

The study was carried out in the Department of Surgery, Mayo Hospital, Lahore from March 2003 to January 2006. All patients who were diagnosed as acute pancreatitis irrespective of the cause were included in the study. Total number of the patients included in the study were 35. Patients were divided in two groups; Group A (controlled) and Group B (uncontrolled). Following investigations were carried out for each patient to support the diagnosis and subsequent course of the disease.

- Full blood count

- Plasma
 - Amylase
 - Sugar
 - Urea/Electrolytes
 - Bilirubin and liver enzymes
 - Lactate dehydrogenase
 - Calcium
 - Albumin
 - C-reactive protein
- Arterial blood gases
- Supine abdominal x-rays
- Erect x-rays chest
- Ultrasound
- C.T.

These patients were kept nil peror. Intravenous fluids, electrolytes and vitamins were given. All these patients were treated with broad spectrum antibiotics preferably third generation Cephalosporin, combined with metronidazole intravenous in three divided dosages and H₂ receptors blocking agents. Parenteral nutrition like 25% dextrose water titrated with regular insulin, intravenous lipids and aminoacids solution were given through central venous line.

In group A Octreotide was given in a dose of 100µgm t.i.d. subcutaneously for 7-10 days. The clinical course of the disease was monitored by a standard proforma designed keeping in view of GLASCOW (Imrie) CRITERIA.

During the course of study these patients were either managed conservatively or undergone different surgical procedures dictated to their indication like exploratory laparotomy and pancreatic debridements washout and drainage with or without accompanied cholecystectomy, and distal pancreatectomy along with splenectomy.

Results:

The results are summarized in Table 1, Table 2 and Table 3. Out of 35 patients, 13(37.14%) had gallstone

pancreatitis with male to female ratio of 3:10 and ages between 30-50 years. The patients who sustained pancreatic trauma either blunt or penetrating were 10(28.57%). Nine were male and 1 was female between the ages of 15-60 years. In 9(25.71%) no cause could be identified. Six were male and 3 were female between the ages of 25-65 years. 3(8.57%) patients were alcoholic and all were males of younger age group.

In group A 20 patients were controlled with subcutaneous 8 hourly dose of octreotide. 12(60%) patients had uneventful recovery without any complication. Pancreatic abscess was formed in 7(35%). One (5%) patient died of intraabdominal haemorrhage. No pseudocyst formation was noted in this group.

In group B, 9(60%) patients developed no complication. Pancreatic abscess was noted in 3(20%) patients. 3(20%) patients developed pseudocyst formation.

Table 1: Breakup of patients in respect of causative agents. (n=35)

Causative agent	No.	%	M/F Ratio	Age
Gall stones	13	37.14	3:10	30-50
Trauma	10	28.57	9:1	15-60
Idiopathic	9	25.71	6:3	25-65
Alcohol	3	8.57	3:0	20-45

Table 2: Breakup of patients in respect of complications (n=35)

Outcome	Group A(n=20)	Group B (n=15)
Uneventful	12(60%)	9(60%)
Abscess	7(35%)	3(20%)
Pseudocyst	0	3(20%)
Haemorrhage	1(5%)	0
Mortality	6(30%)	4(26.66%)

Table 3: Effects of octreotide in different types of pancreatitis (n=35)

Complications	Gall stone pancreatitis (n=13)		Traumatic pancreatic (n=10)		Idiopathic pancreatitis (n=9)		Alcoholic pancreatitis (n=3)	
	Group A	Group B	Group A	Group B	Group A	Group B	Group A	Group B
Uneventful	5	4	2	1	3	3	2	1
Abscess formation	2	2	3	0	2	1	0	0
Haemorrhage	0	0	1	0	0	0	0	0
Pseudocyst formation	0	0	0	3	0	0	0	0
Mortality	1	2	3	1	2	1	0	0

Discussion:

Acute pancreatitis happened to be very serious disease with mortality of about 30%. The overall mortality rate in older patient was found to be higher and they were considered more likely at risk during an attack of acute pancreatitis^{6,7}. The case mortality rate was 1-2% in those aged less than 40 years to more than 18% in 70 years of age as in the following table⁸.

Age (years)	Case mortality
<30	1.0
30-40	1.4
41-50	2.9
51-60	4.8
61-70	8.6
>70	18.8

Among the various aetiological factors of acute pancreatitis, gallstones were responsible for almost majority of the cases and most of them were females. The disease of gallstones pancreatitis showed fluctuation in its severity and many a times the patients seem to be improving but on the other time they were deteriorating.

Many patients who did not respond to the every conservative measures and they developed pancreatic necrosis and abscess so their conservative management

was to be deferred and they were under gone exploratory laparotomy with pancreatic debridement and wash out, combined with or without cholecystectomy but the surgery did not happen to improve their severity of disease.

The authors examined suppurative complications caused by acute necrotizing pancreatitis and pointed out the worse prognosis. Many cases of pancreatic abscess, died inspite of surgery⁹.

The patients who presented with pancreatic trauma were of equal strength as that of gall stones pancreatitis. Patient who sustained Grade I or II either blunt or penetrating pancreatic trauma, they improved well while patients who sustained severe trauma of Grade III or IV did not improve even with surgical intervention. We found that patient of polytrauma having pancreatic as well as visceral injuries had bad prognosis as compared to the patients having isolated pancreatic injury. Among trauma one patient died of severe haemorrhagic complication. While in the study 12 patients (1.7%) showed massive postoperative haemorrhage with arterial bleed¹⁰.

Idiopathic pancreatitis is labeled when initial investigations fail to reveal the cause⁴. The high prevalence of biliary crystals in patients with IAP suggests that they are the most common etiology. The optimal

method to detect biliary crystals is yet to be determined. The clinical course and outcome of idiopathic pancreatitis was not different from other types of pancreatitis.

Alcoholism was not very common in contrary to USA where alcoholism is the prominent aetiology¹¹.

Pancreatic necrosis and sepsis are the leading causes of mortality in acute pancreatitis. Although aggressive organ system support has resulted in improved survival in the early stage of the disease, patients continue to die from necrosis and septic complications culminating in multiorgan failure¹². The reported mortality rate of these complications ranges from 5-80 percent^{13,14}.

There is a wide variation in the reported prevalence of pancreatic pseudocysts after acute pancreatitis, ranging from less than 5% to more than 70%¹⁵ depending upon the severity of the attack and the thoroughness of investigation. In our study, 3 patients developed pseudocyst and they were in uncontrolled group B sowing beneficial effects of octreotide.

In controlled trials, although octreotide failed to produce a statistically significant improvement in mortality, it was associated with lower complication rates. In a meta-analysis⁶ considered six studies and concluded that Somatostatin significantly reduces the mortality rate associated with acute pancreatitis.

The subcutaneous octreotide has been tried in 20 cases of acute pancreatitis and it did not show beneficial effect in contrast to the patients who were managed without octreotide. Uhl et al¹⁶, Paren et al¹⁷ found significantly lower incidences of sepsis and acute respiratory distress syndrome, as well as the shorter hospital stay and decrease mortality. The studies by Planas et al¹⁸ did not reveal any effect on morbidity or mortality.

While the Ciconi E et al used octreotide in therapy of acute pancreatitis in 1992 in Italy and concluded that octreotide can give good response in acute pancreatitis without side effects or complication¹⁹. Octreotide has also been used to prevent complications after elective pancreatic surgery and promising results observed²⁰.

No statistically significant effect of octreotide in terms of amylase and lipase level was found. octreotide reduces pancreatic enzyme secretion clinical need for analgesic drugs administration and local complication role and shorter hospitalization. However, its effect on mortality is questionable²¹.

Whereas a lot of work has been done to study the role of octreotide on acute pancreatitis. Most of the studies have proved varied effects of octreotide in the management of acute pancreatitis.

Conclusion:

1. Octreotide did not help in the management of acute pancreatitis and routine use is not recommended²².

2. Acute pancreatitis is a very serious disease of having over all mortality of about 30%.
3. Pancreatic necrosis and sepsis are leading cause of mortality in acute pancreatitis.
4. In necrotizing and suppurative pancreatitis surgery did not improve the prognosis of these patients.
5. The development of pseudocyst is more common in patients who were not being managed with octreotide.

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