

# A Prospective Audit of Treatment of Acute Pancreatitis in a Tertiary Care Hospital in South India

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**Abstract- Background:** Acute Pancreatitis, Very Commonly Seen In Gastroenterology Is A Potentially Lethal Multiorgan Dysfunction Disorder. Several Guidelines Have Been Laid Out By Various Societies Like British Society Of Gastroenterology (Bsg), However Each Institution Has Tailored Its Protocols In Connivance With Local Management Options Available. **Materials And Methods:** The Aim Was To Compare The British Society Of Gastroenterology (Bsg) Issued United Kingdom Guidelines For The Management Of Acute Pancreatitis And Standard Of Care For Acute Pancreatitis Imparted In Our Hospital. **The Study Population Involved 22 Patients Over A Period Of One Year. Results-Of Eight Parameters Compared, There Was 100% Adherence To Standard Guidelines In Three, While Three Had Reasonably Good Adherence(60-80%), While There Was Poor Adherence In Two Factors When Compared With Standard Protocols. Conclusion-Overall, There Was Good Standard Of Comparability Between Our Protocols And Standard Line Of Management, Even Though There Is**

**Much Scope For Improvement And Mortality Could Have Been Significantly Reduced.**

**Keywords:-** Acute Pancreatitis, ERCP, Laparoscopic Cholecystectomy.

## I. INTRODUCTION

Acute pancreatitis, an oft commonly seen pathology, can have cataclysmic manifestations and has a mortality of 10 to 15%. However, there is a wide variation in its severity, ranging from a mild, self limiting condition to a severe and life threatening disease. Most of whom who succumb has severe disease, with a mortality rate of 40%. The clinical manifestations are abdominal pain, vomiting, fever and shock with elevated levels of plasma pancreatic enzymes. The exact pathogenesis remains unclear but premature activation of pancreatic enzymes. Acute pancreatitis has been classified using Atlanta classification into three types viz mild, moderate and severe pancreatitis.<sup>1</sup>

Table 1-Revised Atlanta classification categorizing types of pancreatitis on the basis of clinical severity

Disease severity	Symptoms
Mild acute pancreatitis	No organ failure No local or systemic complications
Moderately severe acute pancreatitis	Organ failure that resolves within 48 h (transient organ failure) Local or systemic complications without persistent organ failure
Severe acute pancreatitis	Persistent organ failure (>48 h) Single organ failure Multiple organ failure

The severity of pancreatitis can also be delineated using several criteria like Ranson’s criteria, Glasgow pancreatitis scoring and APACHE-II (acute physiology and chronic health evaluation) scoring system. Judicious use of this scoring system and clinical correlation is the most important factor influencing prognosis. The severity of pancreatitis can also be done using computed tomography, the scoring system known as CT severity index. Managing acute pancreatitis is

influenced by plethora of factors like optimal endoscopic retrograde cholangiopancreatography (ERCP) intervention, prophylactic antibiotics in selective cases, earlier introduction of enteral nutrition and surgery in very few cases. It also involves aggressive fluid replenishment using monitoring of central venous pressure (CVP), respiratory support in form of oxygen supplementation, non invasive ventilation and invasive ventilation as per the deterioration. Although

mortality has come down of late since the improvement in the critical care. many patients with acute pancreatitis succumb in the first week or later in the second or subsequent weeks. In most cases, the unifying causative factor is multi organ dysfunction syndrome (MODS).

Over the years, the British Society of Gastroenterology (BSG) issued United Kingdom Guidelines for the Management of Acute Pancreatitis have been seen as a benchmark for the treatment of acute pancreatitis. The aim of our study was to compare the British Society of Gastroenterology (BSG) issued United Kingdom Guidelines for the Management of Acute Pancreatitis vs standard of care for acute pancreatitis imparted in our hospital

## II. REVISED RECOMMENDATIONS AND AUDIT STANDARDS

Only grade A recommendations were supported by randomized controlled trials and grade B recommendations were supported by non-randomized clinical trials whilst grade C recommendations were based on expert committee reports or the clinical experience of respected authorities. Only one of the nine recommendations listed in the BSG guidelines for acute pancreatitis was grade A, Seven recommendations being grade B and one grade C. Despite the lack of strong evidence underpinning many of the recommendations, the implication of the publication is that all of the guidelines should be implemented.

## III. MATERIALS & METHODS

This is a prospective descriptive observational study, which includes patients with acute pancreatitis admitted to the gastroenterology department of our hospital, according to the following criteria: All the patients above age of ten with documented acute pancreatitis were included in the trial. Excluded from the study were patients with acute cholecystitis, acute intestinal obstruction, ischemic colitis, intestinal perforation or mesenteric infarction. Patients were admitted from the Emergency Department. After detailed history and clinical examination. APACHE-II scoring system was used for the evaluation of severity. Necessary investigations like serum amylase, arterial blood gases, serum urea, serum creatinine and electrolytes were carried out. They were managed according to locally agreed protocols which included: 1. Management of acute pancreatitis was done with transfer of all cases developing multi-organ failure or local complications to the medical gastroenterologist. Early endoscopic retrograde cholangiopancreatography (ERCP) was considered for all patients with gallstone pancreatitis after proper stabilization. Definitive treatment for gallstone pancreatitis mean initial admission for endoscopic sphincterotomy (ES) alone for elderly or unfit patients or cholecystectomy for fit patients after exclusion or removal of duct stones at ERCP. 3. Computed tomography (CT) only to establish initial diagnosis in cases of diagnostic uncertainty or

as a prelude to possible surgery for severe acute pancreatitis usually in the second or subsequent week following admission. Antibiotics (usually cefoperazone and sulbactam) were used in all patients with severe acute pancreatitis. Nutritional support was provided in patients with confirmed severe pancreatitis). Early enteral feeding was employed routinely. Analysis of the data was performed to enable comparison with the nine BSG recommendations for acute pancreatitis.

## IV. RESULTS

A total of 22 patients were included in our study. There were 13 males and 9 females, giving a female to male ratio of about 0.7:1. Ages of the cases ranged from 11-65 years (mean-45 years), common age group being 30-45 years. Majority of cases did not have significant morbidity, 7 of the patients had severe acute pancreatitis. Cholelithiasis was the commonest cause found in (59.6%) cases, followed by ethanol (41.2%) , Mean APACHE-II score was found to be 8 (range 6-11). Three patients had APACHE-II score of <7, 17 had between 7-9 and 2 patients >9. The most severe systemic complication encountered was ARDS in 2 patients; seven had hypotension and three oliguria. Local complications were ileus in 2 patients and pseudo cyst formation in 1 patient. Six patients stayed in ICU for more >3 days. Two patients died in the series due to multiorgan failure (MODS), one died within 24 hours of admission due to MODS. CT scan showed diffuse edema with peripancreatic fluid in 4 cases, necrosis in 2 cases.

### ➤ AUDIT FINDINGS

Results are presented below along with the corresponding recommendations made in the 2019 modification of BSG guidelines for treatment of acute pancreatitis.

#### 1. Mortality

While striving constantly to reduce mortality in acute Pancreatitis, it is currently accepted that some patients will die. The overall mortality should be lower than 10%, and less than 30% in those diagnosed with severe disease. In our hospital, mortality was 9.2% (2 out of 22 patients). One death occurred within 24 hours while second one occurred within 4 days after admission to ICU. The cause of death was MODS in both the cases. Median age of those dying with acute pancreatitis was 54.5 years. The mortality rate was 20% for severe pancreatitis and in those with mild disease was nil. **Thus as far as mortality is concerned, our hospital standards adhered to standard BSG guidelines (100%)**

#### 2. Diagnosis

The correct diagnosis of acute pancreatitis should be made within 48 hours of admission. Although this may strain support and diagnostic facilities, the risk of missing an alternative life threatening intra-abdominal catastrophe demands full investigation. (Recommendation grade C.) The diagnosis of acute pancreatitis was achieved within 48 h in all

22 admissions. USG abdomen was done in all patients within 6 hours for all the patients even though the sensitivity was only 52%. There was no role for diagnostic CECT in our cohort of patients. Thus as far as the diagnosis of acute pancreatitis is concerned, **our hospital adhered to standard BSG guidelines (100%)**

**3. Severity stratification**

Severity stratification should be made in all patients within 48 hours. It is recommended that all patients should be assessed by the Glasgow score and CRP. The APACHE II score is equally accurate, and may be used for initial assessment; it should be used for ongoing monitoring in severe cases. (Recommendation grade B.)

Of the total, 16 episodes were predicted as mild and 6 severe acute pancreatitis based on modified Glasgow criteria and Atlanta scoring. But a follow up Glasgow score and APACHE II score was done only in 3 patients. In this regard, there was a severe lacuna in risk stratifying. In the two patients who expired, initial Glasgow score was high, but there was no follow up. **Hence there is a severe deficiency as far as risk stratification assessment is concerned. It is advised that proper documentation and follow up is mandatory to prevent such adverse incidents in future (30%)**

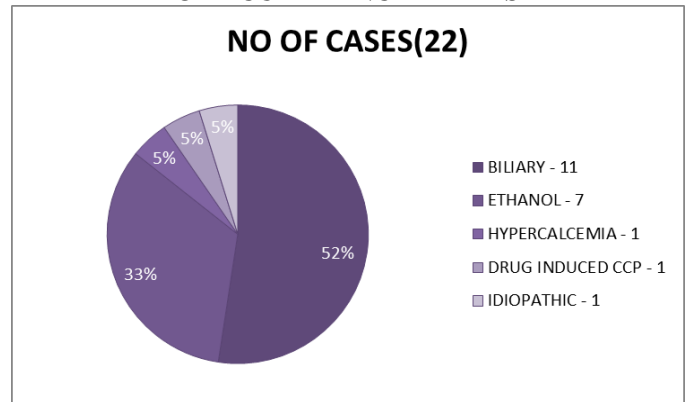
**4. CT scanning**

A dynamic CT scan should be performed in all (predicted) severe cases between 3 and 10 days after admission (Recommendation grade B). Here again there was a big lacuna in the implementation. Although 5 out of 6 patients with acute severe pancreatitis underwent CECT abdomen, (1 patient couldn't be shifted to CECT), 5 patients with mild pancreatitis also underwent a CECT. It was done to rule out other causes of abdominal pain. But my opinion is that few of these imaging could have been avoided as it entailed an unnecessary radiation exposure. The CECT abdomen was done in all patients after 72 hours (100% adherence to norms). **It is advised that stringent norms should be followed regarding ct imaging in patients with acute pancreatitis (70%)**

**5. Incidence of idiopathic pancreatitis**

The etiology of acute pancreatitis should be determined in 75-80% of cases, and no more than 20-25% should be classified as 'idiopathic'. As the etiology of acute pancreatitis varies geographically, it is not possible to be dogmatic on this Recommendation. (Recommendation grade B.) The presumed etiology in each case of acute pancreatitis is shown in Table 1.

**1-CHART SHOWING ETIOLOGICAL DISTRIBUTION OF ACUTE PANCREATITIS**



Cases and contribution

Inability to image the pancreas and /or biliary tree adequately with trans abdominal ultrasonography (TUS) was recorded by the radiologist in 39 (17.5%) of the 22 scans. Of the 12 patients ultimately found to have gallstones, these were identified on the first admission in 7 cases by TUS and rest by EUS. In 2 cases with an initially normal ITUS, repeated scan at a later date revealed gallstones. In 9 patients (41.4%), alcohol was felt to be the apparent cause for pancreatitis has been found. One had hypercalcemia while a young female had pancreatitis secondary to NSAID intake. Thus we only had one case of idiopathic. **a diagnosis of idiopathic pancreatitis has been made cause of the attack and in 22 patients (9.1%). Thus in this regard ,our hospital adhered to the BSG guidelines(100%)**

**6. Treatment of mild gallstone pancreatitis**

Mild gallstone pancreatitis without complications should have definitive management of lithiasis (cholecystectomy and bileduct clearance if necessary), ideally within two weeks and no longer than four weeks. Of 11 cases of biliary pancreatitis, 8 underwent ERCP and sphincterotomy. Apparently only 2 underwent cholecystectomy and that too was after 6 weeks. **Thus in this regard there is a severe lacunae observed (40%). It is advised that surgeons and gastroenterologists work together as combined team to avoid such hassles in future.**

**7. ERCP**

Facilities and expertise should be available to perform at any time an ERCP for common bile duct evaluation followed by sphincterotomy and stone extraction or stenting as required, particularly, but not exclusively, in severe gallstone pancreatitis, jaundice or cholangitis (Recommendation grade A). In our hospital, ERCP was readily available. Imaging of the Common Bile Duct (CBD) was not performed in every patient with acute gallstone Pancreatitis some patients were moribund, while EUS (Endoscopic Ultrasound) failed to show any stones in some. Of the 8 patients who underwent ERCP, all patients had a sphincterotomy and two underwent stent insertion. Only 3 patients with severe pancreatitis underwent ERCP as an emergency within the first 48 hours with stone extraction from the bile duct. **Thus as far as ERCP availability for gallstone pancreatitis is concerned, there was almost 80% adherence to BSG guidelines, but there is still scope for improvement.**

**8. Predicted severe and clinically severe pancreatitis**

All cases of severe acute pancreatitis should be managed in an HDU (High dependency unit) or ICU (Intensive care unit) setting with full monitoring and systems support. (Recommendation grade B.) Recommendation: referral to specialist unit Management in, or referral to, a specialist unit is necessary in patients with extensive necrotizing pancreatitis or with other complications who may require ICU care, interventional Radiological, endoscopic, or surgical procedures. (Recommendation grade B.) Of all patients, 6 had acute severe pancreatitis and was treated in ICU with combined efforts of gastroenterologists, GI surgeons and intensivists. 3 had necrotizing pancreatitis which was managed conservatively. Hospital stay ranged from 1-34 days with average 5-6 days. None of them had a surgical intervention for severe disease. **Thus in this regard, our hospital adhered to BSG guidelines (100%).**

**TABLE 1-TABLE SHOWING VARIOUS AUDIT GUIDELINES AND OUR HOSPITALS ADHERENCE TO THE NORMS**

PARAMETER	ADHERENCE(GOOD)	AVERAGE	POOR
1.MORTALITY	+		
2.DIAGNOSIS	+	+	
3. SEVEERITY STARTIFICATION	+		
4.CT SCANNING			+
5.INCIDENT OF IDIOPATHIC PANCREATITIS	+		
6.TREATMENT OF GALLSTONE PANCREATITIS			
7.ERCP		+	+
8.SEVERE ACUTE PANCREATITIS			
<b>OVERALL</b>	<b>GOOD ADHERENCE</b>		

**V. OTHER SALIENT LACUNAE NOTED IN STUDY**

1. EARLY ENTERAL FEEDING WAS STARTED IN 90% OF PATIENTS WHICH IS IN CONCORDANCE WITH NEWER GUIDELINES, MOST OF THEM HAD ORAL FEEDS, 4 HAD NASOGASTRIC TUBE WHILE 2 HAD NASOJEJUNAL TUBES INSERTED.

2. ANTIBIOTIC POLICY WAS HAPHAZARD, ALTHOUGH ALL PATIENTS WITH ACUTE SEVERE PANCREATITIS RECEIVED ANTIBIOTIC, MOST PATIENTS WITH MILD PANCREATITIS WERE GIVEN IV ANTIBIOTICS. THIS IS IN DISCORDANCE WITH CURRENT GUIDELINES WHICH ADVISE JUDICIOUS USE OF ANTIBIOTICS IN UNCOMPLICATED ACUTE PANCREATITIS. MORE ATTENTION IS NEEDED IN THIS REGARD.

3. IV HYDRATION IS INADEQUATE IN MOST PATIENTS. CURRENT GUIDELINES ADVISE 400ML/HR IV FLUIDS, MOST OUR PATIENTS RECEIVE 100ML/HR ON AN AVERAGE. THIS MAY BE DONE TO AVOID UNNECESSARY FLUID OVERLOAD, BUT IN A TERTIARY HOSPITAL WITH A CRITICAL CARE TEAM, THERE SHOULDN'T BE ANY SUCH

HASSLES. MORE ATTENTION IS NEEDED IN THIS REGARD.

4. IN MANY PRESCRIPTIONS, PANCREATIC ENZYME SUPPLEMENTATION WAS NOTED. THEY HAVE ABSOLUTELY NO ROLE IN ACUTE PANCREATITIS, OTHER THAN CAUSED BY CHRONIC CALCIFIC PANCREATITIS. HENCE INJUDICIOUS USE OF SUCH DRUGS ARE TO BE STRONGLY DISCOURAGED.

**RECOMMENDATIONS**

1. Proper documentation and assessment of prognostic scores.
2. Judicious and protocol based antibiotic usage.
3. Usage of CT and other imaging modalities only in relevant setting and avoid unnecessary radiation exposure.
4. Avoid hassles in doing early ERCP in setting of biliary pancreatitis, specially in setting of cholangitis.
5. Advice GI surgeon to follow up biliary pancreatitis patients for early and prompt cholecystectomy.
6. Prompt fluid resuscitation and early enteral feeding.

**7.Treatment of the cause, adequate nutritional supplementation and good teamwork with GI surgeons, intensivists in setting of acute severe pancreatitis.**

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