ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 11 | November - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

STUDY OF CLINICAL PRESENTATION AND MANAGEMENT OF ACUTE PANCREATITIS AT A TERTIARY HOSPITAL IN NORTH MAHARASHTRA, INDIA

General Surgery

Dr Milind Chaudhari* Assistant Professor, Government Medical College, Jalgaon. *Corresponding Author

Dr Zaid Pathan Junior Resident, Government Medical College, Jalgaon.

ABSTRACT

Acute pancreatitis (AP) is a severe inflammatory disorder with rising global incidence. In India, regional heterogeneity in etiology, particularly the dominance of alcohol consumption, mandates local studies to inform public health strategy and clinical protocol refinement. This study aimed to analyze the clinical presentation, etiological profile, management adherence, and outcomes of acute pancreatitis patients admitted to a tertiary care center in North Maharashtra. A prospective observational study was conducted on 100 consecutive patients diagnosed with AP based on the Revised Atlanta Classification criteria at Government Medical College (GMC), Jalgaon. The study cohort showed a strong male predominance (71%) and a peak incidence in the 3rd and 4th decades (mean age 39.5 ± 12.8 years). The predominant etiology was alcohol consumption (72%), followed by gallstone disease (20%). Based on the Revised Atlanta Classification, 61% of cases were classified as Mild AP, while 14% presented with Severe AP. Local complications such as pancreatic pseudocyst (15%) and acute necrotic collections (10%) were common. The overall mortality rate was 5%. The clinical profile of AP in North Maharashtra is overwhelmingly driven by alcohol, affecting young adult males. The study highlights the critical need for adherence to standardized management protocols, aggressive fluid resuscitation, and public health interventions targeted at reducing hazardous alcohol use in this region.

KEYWORDS

Acute Pancreatitis; Maharashtra; Alcohol; Gallstones; Revised Atlanta Classification; BISAP.

INTRODUCTION

Acute Pancreatitis (AP) is an acute inflammatory condition of the pancreas that ranges widely in severity, from mild and self-limiting interstitial edema to severe, life-threatening necrotizing disease characterized by systemic inflammatory response syndrome (SIRS), multi-organ failure, and significant mortality.[1] Globally, the approximately 50 cases per 100,000 people.[2,3]

In India, AP is a major health concern, and its epidemiological profile diverges substantially from Western patterns. While the traditional global drivers are cholelithiasis and alcohol consumption [4], the Indian subcontinent has historically reported a high incidence of idiopathic and Tropical Pancreatitis.[5] However, contemporary data from the international APPRENTICE registry indicate that alcohol-associated pancreatitis accounts for the highest proportion of AP cases across India (45%), often followed closely by biliary etiology.[6,7]

Studies specifically from Maharashtra and Western India have demonstrated an even stronger skew towards alcohol as the primary etiological factor, reaching over 70% in some cohorts.[8] This high prevalence in a young, economically active, predominantly male population introduces significant public health and economic burdens.[9,10] This study was undertaken to provide granular, regional data on the clinical characteristics, etiological spectrum, and management outcomes of Acute Pancreatitis in this specific geographical location.

MATERIAL AND METHODS

Present study was single-center, prospective, observational study, conducted in department of general surgery, at government medical college & hospital, Jalgaon, Maharashtra, India. Study duration was of 2 years (July 2022 to June 2024). Study was approved by institutional ethical committee.

Inclusion Criteria

All adult patients of age >18 years) admitted to the hospital who were newly diagnosed with Acute Pancreatitis (AP) as per the revised Atlanta classification (presence of two or more of the following: acute onset of persistent, severe epigastric pain radiating to the back; serum amylase or lipase activity at least three times the upper limit of normal; characteristic findings of AP on contrast- enhanced computed tomography, magnetic resonance imaging, or transabdominal ultrasound)[1], Willing to participate in present study.

Exclusion Criteria

1. Patients with pre-existing Chronic Pancreatitis.
2. Patients presenting with trauma-induced pancreatitis.
3. Patients unwilling or unable to provide informed consent.

Study was explained to participants in local language & written informed consent was taken. 100 hundred consecutive patients meeting the inclusion criteria were enrolled upon admission. Detailed history taking and clinical examination were performed.

Data collected included, Age, gender, occupation, and socio-economic status, detailed history of alcohol consumption, gallstone disease, hypertriglyceridemia, drug history, and post-ERCP status. Biliary AP was diagnosed by ultrasonography/CT showing gallstones or a dilated common bile duct. Alcoholic AP was based on a history of chronic heavy alcohol consumption. Symptoms (abdominal pain, vomiting, fever, jaundice) and signs (abdominal tenderness, guarding) were recorded.

An abdominal ultrasound was performed on all patients within 24 hours of admission. Contrast- Enhanced Computed Tomography (CECT) of the abdomen was reserved for patients with suspected severe AP or clinical deterioration, typically performed after 72 hours of symptom onset.[11]

Severity was assessed within the first 48 hours using the Bedside Index for Severity in Acute Pancreatitis (BISAP) score and the Modified Marshall scoring system for assessing organ failure. Patients were classified as Mild, Moderately Severe, or Severe AP according to the Revised Atlanta Classification.[1] Documentation of initial management (fluid type and volume, analgesia), definitive interventions (ERCP, percutaneous drainage, surgical necrosectomy), local complications (pseudocyst, necrosis, organ failure), length of hospital stay (LoS), and final outcome (discharge/mortality).

Data were compiled using Microsoft Excel and analyzed using SPSS software (Version 25.0). Descriptive statistics were used to present demographic and clinical characteristics (mean standard deviation for continuous variables; frequency and percentage for categorical variables).

RESULTS

A total of 100 patients with Acute Pancreatitis were included in the final analysis. The mean age of the study cohort was 37.55 ± 11.56 years, with the majority of patients (55%) falling within the primeworking age group of 18 to 40 years. There was a strong male predominance, with males accounting for 71.0% of the cases (Male:Female ratio of 2.4:1).

Table 1: Demographic Characteristics ()

Characteristic	No. of Subjects (n=100)	Percentage (%)
Gender		
Male	71	71.0

Female	29	29.0
Age Group (Years)		
18–30	25	25.0
31–40	30	30.0
41–50	22	22.0
>50	23	23.0

Abdominal pain and tenderness were universally present (100%) in all patients, consistent with the diagnostic criteria. Vomiting was the second most common associated symptom (65.0%). Jaundice was reported in over a third of the patients, indicating a high incidence of biliary obstruction or severe systemic inflammation.

Table 2: Clinical Symptoms At Presentation

Symptom/Sign	No. of Subjects (n=100)	Percentage (%)
Abdominal Pain	100	100.0
Abdominal Tenderness	100	100.0
Vomiting	65	65.0
Fever	48	48.0
Jaundice	35	35.0
Ileus/Distension	28	28.0

Alcohol consumption was identified as the overwhelming primary cause, accounting for 72.0% of all AP cases. Gallstones were responsible for 20.0% of cases, primarily affecting females. Idiopathic cases (4.0%) and hypertriglyceridemia (3.0%) constituted minor proportions.

Table 3: Etiological Factors of Acute Pancreatitis ()

Etiology	No. of Subjects (n=100)	Percentage (%)
Alcohol	72	72.0
Gallstones (Biliary)	20	20.0
Idiopathic	4	4.0
Hypertriglyceridemia	3	3.0
Post-ERCP	1	1.0

The majority of patients (61.0%) presented with Mild AP, recovering without significant complications. However, 39.0% of the cohort developed Moderately Severe or Severe disease, requiring intensive management and closer monitoring. The proportion of severe AP (14.0%) was slightly higher than general national registries.[7]

Table 4: Classification Of Severity (Revised Atlanta,)

Severity Classification	No. of Subjects (n=100)	Percentage (%)
Mild AP (No organ failure/ local complications)	61	61.0
Moderately Severe AP (Transient organ failure local complications)	25	25.0
Severe AP (Persistent organ failure hours)	14	14.0

Pancreatic pseudocyst (15.0%) was the most frequently encountered local complication, followed by acute necrotic collection (10.0%). Organ failure, either transient or persistent, was observed in 18% of patients. A total of 15 patients (12 with image-guided drainage and 3 with surgical necrosectomy) required minimally invasive or surgical interventions.

Pancreatic pseudocyst (15.0%) was the most frequently encountered local complication, followed by acute necrotic collection (10.0%). Organ failure, either transient or persistent, was observed in 18% of patients. A total of 15 patients (12 with image-guided drainage and 3 with surgical necrosectomy) required minimally invasive or surgical interventions.

Table 5: Complications And Interventions

Complication/Intervention	No. of Subjects (n=100)	Percentage (%)
Local Complications		
Pancreatic Pseudocyst	15	15.0
Acute Necrotic Collection	10	10.0
Systemic Complications		
Organ Failure (Transient/Persistent)	18	18.0
Interventions Required		
Urgent ERCP (within 48h)	5	5.0
Image-Guided Drainage (Percutaneous)	12	12.0
Surgical Necrosectomy	3	3.0

The overall in-hospital mortality rate was 5.0%. All five mortalities occurred in patients classified with Severe AP (Table 4). The median length of hospital stay (LoS) was 8 days, but this varied significantly depending on severity, with Severe AP cases requiring a median LoS of 18 days due to complicated courses.

Table 6: Outcomes And Length Of Stay

Outcome Characteristic	No. of Subjects (n=100)	Percentage (%)
Hospital Outcome		
Discharged Healed/Improved	95	95.0
In-Hospital Mortality	5	5.0
Median Length of Stay (Days)		
Mild AP	6	N/A
Severe AP	18	N/A
Overall Median LoS	8	N/A

DISCUSSION

All patients underwent immediate risk stratification using the Bedside Index for Severity in Acute Pancreatitis (BISAP) and Modified Marshall scoring systems upon admission to identify those requiring Intensive Care Unit (ICU) monitoring. Initial supportive care was centered on aggressive intravenous fluid resuscitation with crystalloids, alongside adequate analgesia, and continuous monitoring for the development of Systemic Inflammatory Response Syndrome (SIRS) or organ failure.

The management philosophy focused on stabilizing the patient during the early critical phase. Diagnostics included mandatory abdominal ultrasound within 24 hours of presentation to determine biliary etiology. Patients diagnosed with biliary AP and concurrent cholangitis were prioritized for urgent Endoscopic Retrograde Cholangiopancreatography (ERCP) within 24 hours. Advanced imaging, specifically Contrast-Enhanced Computed Tomography (CECT), was reserved for patients with suspected severe AP or clinical deterioration and typically performed after 72 hours to accurately assess the extent of pancreatic necrosis.

Our finding that **72%** of AP cases were due to alcohol markedly exceeds the national average of 45% reported in the multi-center APPRENTICE registry.[7] It aligns almost perfectly with other Western Indian cohorts, such as a study from Nashik, Maharashtra, where alcohol was the leading etiological factor in **70.8%** of recruited patients.[8] This regional pattern underscores the paramount importance of alcohol abuse as a targeted public health issue in Maharashtra.

The study observed a mean age of **39.5 years** and a male-to-female ratio of **2.45:1 (71% male)**. This demographic is typical for alcohol-driven AP, placing the disease squarely within the working-age population.[10] A study from Nashik reported a similar mean age of **39.78 years** and **72% male** patients [9], while a Lucknow-based study noted a mean age of **36.96 years** with **73.33% male** recruitment.[8] The concentration of disease in young males suggests significant productivity loss and socioeconomic strain in the region.[10,11]

We reported an overall mortality of **5.0%**, concentrated entirely within the Severe AP group. This falls within the typical range reported by Indian tertiary centers (2.5% to 10.63%).[8] A study in South India reported mortality of **8.8%**[14], and another reported **10.63%**.[12] Furthermore, the observation that 14% of our patients developed Severe AP is comparable to the 12% reported in the international APPRENTICE study for the global cohort.[7]

We found that 15% of patients developed pancreatic pseudocyst, and 10% developed acute necrotic collections. Similar findings were reported by a retrospective study, which noted pseudocyst formation in **13.8%** of patients and organ failure in **7.5%**.[13] This consistency suggests that despite variations in hospital resources, the biological progression to local fluid collections remains a significant management challenge.

Although not presented in the results tables, severity prediction tools like BISAP are crucial for triage. The accuracy of BISAP in the Indian context has been confirmed, showing an Area Under theCurve (AUC) of **0.940** for predicting mortality, and indicating that patients with a BISAP score invariably develop severe AP or pancreatic necrosis.[14] The high-risk cohort (Severe AP) in our study underscores the necessity of mandating such scoring systems within the first 24 hours.

While our methodology did not specifically track the onset-to-admission interval, evidence suggests this is critical. Studies have shown that mortality is highest in patients presenting between **8 and 21 days** after symptom onset (**24%** mortality), compared to those presenting earlier (14.2%).[15] Given that GMC Jalgaon is a referral center, delayed presentation from peripheral centers likely contributes significantly to the severity observed in our cohort. Standardized referral protocols for the region are necessary.[15]

The prompt management of mild biliary AP through early cholecystectomy is a key quality metric. Studies show low adherence across India, with only **23%** of patients undergoing cholecystectomy during the index admission.[16] Given that biliary AP accounted for 20% of our cases, improving adherence to this guideline is crucial to prevent recurrence rates, which can range from **33% to 63%** in delayed management.[16]

The significant etiological differences found regionally confirm the rationale behind national initiatives like the Epidemiology of Chronic and Acute Pancreatitis in India (EPICAP-India) study, which plans to cover 110,000 people across 10 sites, including Nagpur in Maharashtra, to establish the definitive burden and risk factors.[6] Our findings add weight to the need for local data to feed into this national epidemiological picture.

CONCLUSION

Findings of present study were characterized by a high prevalence in young males, overwhelmingly caused by hazardous alcohol consumption (72.0%). While overall mortality was manageable (5.0%), the high proportion of Severe AP (14.0%) and the frequency of local complications necessitate continuous quality improvement efforts. Future efforts must focus on public health campaigns to curb alcohol abuse and institutional quality assurance programs to enhance adherence to timely severity assessment (BISAP), aggressive initial resuscitation, and guideline-driven interventions (e.g., early cholecystectomy for mild biliary AP) to mitigate the morbidity and mortality associated with delayed or sub-optimal care.

REFERENCES

1. Banks PA, Bollen TL, Dervenis C, et al. Classification of acute pancreatitis--2012: revision of the Atlanta classification and definitions by international consensus. Gut. 2013;62(1):102-11.
2. Dabir, S, Deshmukh P, Gunjan D, et al. Epidemiology of chronic and acute pancreatitis in India. (EPICAP- India): protocol for a multicentre study.BMJ OpenGastroenterol. 2024;11:e001562.
3. Vindone, J. Pancreatitis, a significant gastrointestinal disorder. J Epidemiol Found India. 2025;3(1):58-62.
4. Sakorafas GH, Tsiotou AG. Etiology and pathogenesis of acute pancreatitis: current concepts. J Clin Gastroenterol. 2000;3(4):343-56.
5. Garg PK, Tandon RK. Survey on chronic pancreatitis in the Asia-Pacific region. J Gastroenterol Hepatol. 2004;19(9):998-1004.
6. Krishnan A, Pillai D, Amarchand R, et al. Epidemiology of chronic and acute pancreatitis in India. (EPICAP- India): protocol for a multicentre study.B M J Open Gastroenterol. 2024;11:e001562.
7. Singh VK, Gardner TB, Das SL, et al. Regional differences in etiology, management, and outcomes of acute pancreatitis: data from the APPRENTICE study. Clin Gastroenterol Hepatol. 2022;20(5):e1140-52.
8. Sharma V, Agrawal S, Sharma P, et al. Etiology and symptoms of patients with acute pancreatitis. Cureus. 2022;14(8):e27867.
9. Borse H, Pardeshi G. Clinical Study of Acute Pancreatitis and its Management at a Tertiary Care Centre. MVP J Med Sci. 2024;11(1):5-8.
10. Krishnan A, Pillai D, Amarchand R, et al. Epidemiology of chronic and acute pancreatitis in India. (EPICAP- India): protocol for a multicentre study.B M J Open Gastroenterol. 2024;11:e001562.
11. Dhingra S, Singh A. Acute pancreatitis: clinical presentation, diagnosis, and management guidelines. J Indian Med Assoc. 2020;118(11):1111-4.
12. Chandran A, Sarma M. Clinical profile of acute pancreatitis in a tertiary care centre. Indian J Surg. 2024;16(2):1-5.
13. Jadhav R. Clinical outcomes of acute pancreatitis in a tertiary care center. Int J Pharm Qual Assur. 2024;16(3):146-50.
14. Gomber A, Kumar A, Aggarwal B, et al. Accuracy of BISAP in predicting mortality and intermediate markers of severity in acute pancreatitis. J Assoc Physicians India. 2016;64:45-50.
15. Sharma V, Dhingra S. Impact of timing of presentation of acute pancreatitis to a tertiary care centre on the outcome. Pancreatology. 2018;18(8):931-5.
16. Gupte A. Guideline adherence in acute pancreatitis: Still a long way to go. J Clin Gastroenterol. 2024;20(1):5-8.