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# Study on clinical profile of acute pancreatitis from a tertiary care teaching institute of western Uttar Pradesh

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## ABSTRACT

**Background-** Prompt decision-making and commencement of treatment are crucial in instances of acute pancreatitis. **Objective-** This study aims to analyze the clinical profile of patients diagnosed and treated for acute pancreatitis at a tertiary care teaching institute in Western Uttar Pradesh. **Methods-** This prospective study was conducted in collaboration with various departments at a tertiary care teaching hospital in Western Uttar Pradesh over ten months from March 2023 to December 2023. The study population consisted of 120 eligible subjects diagnosed with acute pancreatitis. All the cases diagnosed and managed for acute pancreatitis at the study place and during the study time formed the study population. All the cases were followed up till the outcome of the case. A detailed proforma was designed to capture relevant details of study subjects. **Results-** Out of 120 subjects, 98 were male (81.7%) and 22 were female (18.3%). The median age was found to be 35.2 years. Alcohol was identified as the underlying cause in 77 patients (64.2%). In 20 patients (16.7%), no definitive cause could be determined. Complications were seen among 66 subjects. Common complications included pleural effusion (n=24, 20%), ascites (n=18, 15%), and acute fluid collections (n=10, 8.3%). **Conclusion**- Alcohol consumption is the predominant cause of acute pancreatitis in this region,

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with a higher incidence in males typically occurring in their fourth decade of life. Biochemical and radiological assessments are crucial for diagnosis.

**Keywords**: pancreatitis, diagnosis, management.

## INTRODUCTION

Pancreatitis is defined as an inflammatory disorder of the pancreas that may affect adjacent tissues or distant organ systems. The histology may normalise between episodes or present as a singular attack that recurs in distinct intervals [1-3]. Acute pancreatitis is an inflammatory condition of the pancreas that can affect surrounding tissues and distant organ systems. Acute pancreatitis is categorised into three severity levels: mild acute pancreatitis (characterised by the absence of organ failure and systemic or local complications), moderately severe acute pancreatitis (defined by no organ failure or transient organ failure lasting less than 48 hours, with or without local complications), and severe acute pancreatitis (marked by persistent organ failure exceeding 48 hours, potentially affecting one or multiple organs) [4,5].

While alternative aetiologies of acute pancreatitis exist, including biliary stones, idiopathic diseases, and therapeutic endoscopy, gallstones remain the most prevalent cause. The primary significant risk factor for chronic pancreatitis continues to be alcohol consumption. Chronic pancreatitis, albeit less prevalent than acute pancreatitis, nonetheless adversely affects the patient's quality of life [6]. Pancreatic cancer arises from chronic pancreatitis, which has a high mortality rate. Both acute and chronic pancreatitis have elevated mortality rates in these patients due to their severe progression, which, if not addressed promptly, may lead to complications. Chronic pancreatitis may also result in pancreatic cancer [7].

Prompt decision-making and commencement of treatment are crucial in instances of acute and chronic pancreatitis. This pertinent subject has been selected for the present study due to its frequent emergencies, multimodal presentations, complex preoperative diagnoses, and care of sequelae. Consequently, this study was conducted to examine the clinical characteristics of individuals identified and treated for acute pancreatitis at a tertiary care teaching institution in western Uttar Pradesh.

## MATERIALS AND METHODS

This prospective study was conducted in collaboration with various departments at a tertiary care teaching hospital in Western Uttar Pradesh over ten months from March 2023 to December 2023. The study population consisted of 120 eligible subjects diagnosed with acute pancreatitis.

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- **Study Setting**: Hospital-based study
- **Sampling Technique**: Purposive sampling
- **Inclusion Criteria**: All diagnosed cases of acute pancreatitis during the study period
- **Data Collection**: A detailed proforma was utilized to gather demographic details, clinical information, treatment received, and outcomes.

**Study strategy:**

All cases were monitored until their resolution. A comprehensive proforma was created to record pertinent information about research participants. The initial portion included the patient's demographic information. The second component included the clinical information about the case, along with pertinent follow-up details. Information regarding the investigations conducted and the treatment administered was also recorded. The third segment contained enquiries regarding the patient's result statistics.

The investigation commenced solely after acquiring requisite approvals, including authorisation from the medical college's ethical committee. The collected data were input into an MS Excel spreadsheet, suitably coded, and subsequently cleansed for potential inaccuracies. The statistical analysis was conducted utilising IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp. Armonk, NY, USA). All data has been collected and analysed using suitable statistical procedures and tests.

**RESULTS**

Data from 130 subjects were collected; however, incomplete data from 10 subjects were excluded from analysis, resulting in a final sample size of 120 subjects.

- **Gender Distribution**: Out of 120 subjects, 98 were male (81.7%) and 22 were female (18.3%).
- **Age Incidence**: The median age was found to be 35.2 years.
- **Etiology**: Alcohol was identified as the underlying cause in 77 patients (64.2%). In 20 patients (16.7%), no definitive cause could be determined.

**Table 1: Comparative analysis of different variables related to acute pancreatitis**

| **Variables** | | **Frequency** | **Percentage** |
|---|---|---|---|
| **Gender distribution** | Male | 98 | 81.7% |
| | Female | 22 | 18.3% |
| **Age distribution** | Median age | 35.2 years | |

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| | | | |
|---|---|---|---|
| **Etiology** | Idiopathic | 20 | 16.7% |
| | Biliary | 2 | 1.7% |
| | Alcoholic | 77 | 64.2% |
| | Others | 21 | 17.4% |

Complications were seen among 66 subjects. Common complications included pleural effusion (n=24, 20%), ascites (n=18, 15%), and acute fluid collections (n=10, 8.3%).

**Table 2: Complications and Mortality Related to Acute Pancreatitis**

| **Complication** | **Number (%)** |
|---|---|
| Pleural Effusion | 24 (20) |
| Ascites | 18 (15) |
| Acute Fluid Collection | 10 (8.3) |
| Pancreatic abscess | 4 (3.3) |
| Others (cyst, thrombosis, necrosis) | 10 (8.3) |

## DISCUSSION

In terms of the pathology of this clinical entity, when these processes are combined with other disease states marked by peritonitis and hypovolemia, the pathogenesis and management of cardiovascular collapse, respiratory failure, metabolic encephalopathy, gastrointestinal bleeding, and disseminated intravascular coagulation complications associated with severe pancreatitis seem to be identical.

Hypovolemia significantly contributes to cardiovascular collapse, necessitating immediate fluid and electrolyte restoration. A central line may be required as a consequence. Atelectasis and acute lung injury are pulmonary manifestations of pancreatitis. Effective pulmonary hygiene and meticulous pulmonary function assessment are crucial to therapy. A poor prognosis is associated with renal failure secondary to pancreatitis, which is usually prerenal. Dialysis, usually haemodialysis, may be required in critical circumstances.

The predominant cause of gastrointestinal bleeding in pancreatitis is stress-induced gastroduodenal erosion, with antacids, H2 receptor antagonists, or proton pump inhibitors serving as preventive interventions. Infrequently, injury to the peripancreatic vascular networks

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may result in significant haemorrhage that infiltrates the retroperitoneum. Significant gastrointestinal vessels may undergo thrombosis due to the inflammatory process of the pancreas, potentially leading to ischaemic lesions in the colon, small intestine, and stomach, which may end in haemorrhage. Disseminated intravascular coagulation may manifest in certain patients with severe pancreatitis; however, it seldom leads to haemorrhage, hence prophylactic heparinization is generally unwarranted.

In terms of gender distribution, we noted that out of a total of sixty individuals, fifty were male and the remaining ten were female. Our investigation observed a masculine predominance. This aligns with another study conducted in the eastern region of our country [8]. The male predominance is likely attributed to a greater incidence of alcoholic pancreatitis, while biliary pancreatitis occurs similarly in both genders, despite a larger prevalence of gallstones in females.

The median age of the sixty individuals in our study was 35.2 years. Consequently, it can be stated that the highest incidence was observed in the fourth decade of life, which represents the most productive age group. Another study by Baig et al. [8] observed that the median age of the fifty subjects was 30 years. Consequently, it can be asserted that the eastern region of our country is experiencing an impact on a relatively younger population. The findings of Beger HG et al. are inconsistent with our results. An older population was observed to be influenced by Beger HG et al [9].

In our investigation, the aetiology of the clinical state was identified as predominantly alcoholic in origin by 64.2% of the participants. In 16.7% subjects, the aetiology of pancreatitis remained undetermined despite comprehensive assessment. The findings found by Baig et al. align with those of our investigation, however the observations made by Beger HG et al. disagree in this respect. His investigation identified biliary factors as the predominant cause of pancreatitis. (Table 3)

**Table 3: Comparative analysis of different variables related to acute pancreatitis**

| Variables | Present Study | Baig et al.[8] | Beger HG et al.[9] |
|---|---|---|---|
| **Gender distribution** | | | |
| Male | 81.7% | 73.3% | 61.0% |
| Female | 18.3% | 26.7% | 39.0% |
| **Age distribution** | | | |
| Median age | 35.2 years | 30.0 years | 55.1 years |
| **Etiology** | | | |
| Idiopathic | 16.7% | 13.3% | 22% |
| Biliary | 1.7% | 22.2% | 45% |
| Alcoholic | 64.2% | 35.6% | 33% |

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In our investigation, the prevalent consequences of the clinical condition included pleural effusion (20%), ascites (15%), and acute fluid collection (8.3%). In a separate study conducted by Baig et al., pancreatic abscess was identified as the most prevalent consequence, while acute pancreatic necrosis was recognised as the predominant complication by Beger HG et al. [8,9] (Table 4). In this investigation, mortality was seen in 2 individuals (3.3%). Conversely, a reduced death rate was observed by Beger HG et al. This may be attributed to the superior nursing care provided to the patients.

**Table 4: Comparative analysis of complications and mortality related to acute pancreatitis as noted in this study**

| **Variables** | **Present Study** | **Baig et al.[8]** | **Beger HG et al.[9]** |
|---|---|---|---|
| **Complications** | | | |
| Pleural effusion | 20% | Not available | 5.5% |
| Ascitis | 15% | Not available | 7.7% |
| Acute fluid collection | 8.3% | Not available | 5% |
| Acute Renal failure | Not available | 18.2% | 36.3% |
| Pancreatic abscess | 3.3% | 21% | 0.5% |
| Pseudo cyst | Not available | 3% | 2.5% |
| Acute Pancreatic necrosis | Not available | 18.2% | 42.1% |
| Other | cyst, thrombosis, necrosis | Not available | Not available |
| **Mortality** | **3.3%** | Not available | 0.5% |

The severity of acute pancreatitis has been classified by many methods. The existence of SIRS (Systemic Inflammatory Response Syndrome), along with scoring systems such as Glasgow, Ranson, and Acute Physiology and Chronic Health Evaluation (APACHE), and other markers of disease severity, are beneficial yet inadequately validated for mortality prediction [10]. Initial organ dysfunction signifies the disease's severity, necessitating immediate medical intervention for sufferers. Antibiotic prophylaxis is often ineffective, although early enteral feeding diminishes both local and systemic infections [11]. In recent years, there have been significant alterations in the management of acute pancreatitis. Patients with infected necrosis and escalating sepsis necessitate early intervention during the initial phase of treatment, which is non-surgical and solely supportive. Early intensive care has undeniably enhanced patient outcomes [12].

The findings indicate that acute pancreatitis predominantly affects males due to higher rates of alcohol consumption. The peak incidence occurs in individuals around their fourth decade of life.

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This aligns with previous studies indicating similar demographic patterns. The most common complications observed were pleural effusion and ascites, which are consistent with findings from other studies indicating that these are frequent occurrences in patients with severe pancreatitis.

## CONCLUSION

In this area of western Uttar Pradesh, alcohol is the predominant cause of acute pancreatitis. The illness is more prevalent in males and usually presents in the fourth decade of life. Biochemical and radiological findings augment the initial clinical diagnosis. Preferably, a scoring approach should be employed to stratify all instances during the initial 48 hours. Scoring systems aid in identifying patients at greater risk of experiencing a severe episode.

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