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A prospective study on assessment of risk factors, clinical characteristics and outcomes of acute pancreatitis in a tertiary care center

Chikatipalli Radhika*¹, Mohammad Asifa Banu², Audi Narayana Nelavala³¹Department of Pharmacology, Sri Venkateswara College of Pharmacy, Chittoor-517127, Andhra Pradesh, India²Sri Venkateswara College of Pharmacy, Chittoor-517127, Andhra Pradesh, India³Department of Pharmaceutics, Sri Venkateswara College of Pharmacy, Chittoor-517127, Andhra Pradesh, India

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Abstract



This prospective study at RVS Hospital Chittoor targets acute pancreatitis, a severe pancreatic condition with significant health risks. Its goal is to improve patient care by analyzing risk factors, clinical features, and outcomes. Adult patients with acute pancreatitis will participate, providing comprehensive demographic, clinical, and lab data. The research will focus on key risk factors like alcohol use, gallstones, and prior pancreatitis episodes. Clinical aspects, including pain severity, systemic symptoms, and complications, will be documented, utilizing CT scans and MRI for accurate diagnosis and classification. The primary aims are identifying acute pancreatitis risk factors, understanding patient presentations, and monitoring complications during hospitalization. Secondary goals include evaluating the impact of risk factors on disease severity and mortality and exploring connections between specific risks and major complications like pancreatic necrosis and infections. This study is crucial for advancing understanding of acute pancreatitis, guiding healthcare professionals in early diagnosis, risk stratification, and effective management, ultimately enhancing patient outcomes in this complex medical issue.

*Corresponding Author

Name: Dr. C. Radhika

Phone: +91 91773 42332

Email: drradhika@svcop.in

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INTRODUCTION

Elevated pancreatic enzymes in blood are typically linked to acute pancreatitis, which is described as an inflammatory pancreatic disease presenting with abdominal pain. The causes of acute pancreatitis include metabolic disorders [hyperlipidemia, hypercalcemia], trauma, alcoholism, gallstones, and idiopathic conditions. Acute pancreatitis can cause swelling and tenderness in the abdomen, as well as nausea, vomiting, diarrhea, fever, and pain in the abdomen. The incidence of acute pancreatitis in India is 8.6 per 100,000 people. Acute pancreatitis affects 8.0

women out of every 100,000 in India. Systemic inflammatory response syndrome (SIRS) is linked to pancreatic inflammation in acute pancreatitis, which can compromise the function of other organs. Mild, moderate, and severe are the general classifications for the severity of acute pancreatitis. There is no multiple organ failure or local or systemic consequences associated with mild acute pancreatitis. An acute pancreatitis that is moderately severe, with local or systemic consequences without persistent organ failure lasting longer than 48 hours, and transient organ failure that normally goes away in 48 hours. Prolonged organ failure, involving one or more organs or organ systems, is a characteristic of severe acute pancreatitis. Focused interstitial inflammation of the pancreatitis parenchyma and quick restoration of homeostasis characterize the majority of acute pancreatitis' modest clinical presentations.

MATERIALS AND METHODS

Information is gathered from inpatients, outpatients, and emergency rooms. Information about a patient's age, gender, diagnosis, and co-occurring conditions is gleaned from their medical records. The patient's case notes will be examined. This study is being done over an eight-month period. Every patient who was diagnosed with acute pancreatitis within a certain time frame was admitted.

RESULTS AND DISCUSSION

Patient Demographics

The purpose of this study was to investigate the evaluation of risk factors, clinical features, and outcomes related to acute pancreatitis. In this study, 68 patients with acute pancreatitis were diagnosed after visiting the surgical gastroenterology department.

Age Distribution

The participants' average age was 2.40 (± 0.798) years. Male participants averaged 2.40 (± 0.774), whereas female individuals averaged 2.50 (± 0.894). Table 1 reveal that, the 68 study participants, the majority of subjects were in the age range of 21–40 years ($n = 30$), constituting 44.1% of the group, followed by the age group of 41–60 years ($n = 23$), constituting 33.8%, > 60

years ($n = 8$), constituting 11.8%, and < 20 years ($n = 7$) constituting 10.2% of patients.

Table 1: Age distribution among all patients with AP

Age Group (Years)	No. of Patients		Total (%)
	Male	Female	
<20	5(9.61%)	2(12.5%)	7(10.2%)
21–40	24(46.1%)	6(37.5%)	30(44.1%)
41–60	19(36.9%)	4(25%)	23(33.8%)
>60	4(7.69%)	4(25%)	8(11.8%)

Gender Distribution

There were approximately 68 study participants in total, of which 52 (76.4%) were male and 16 (23.5%) were female. The ratio of male to female is 13:4, as indicated in the table 2. This study was done in the surgical gastroenterology department's emergency room, on inpatients, and on outpatients.

Table 2: Gender distribution of patients with AP

Gender	No. of Patient (N=68)	Percentage (%)
Male	52	76.4%
Female	16	23.5%

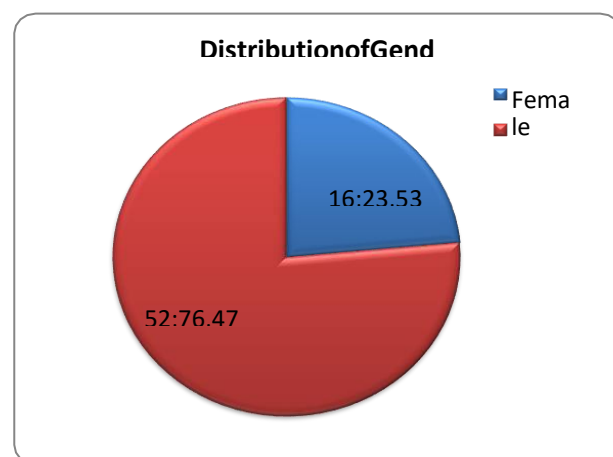


Figure 1: Gender distribution of patients with AP

Comorbidities

Patients with additional co-morbidities are included in our present study. The majority ($n = 22$) of them comprised 32.3% of patients, with hypertension coming in second. Female patients

(n = 1) made up 1.47% of the 14 patients, or 20.5% of the total, followed by patients with thyroid problem 1 (6.25%). As indicated in table 3, cardiac disorders were next in 3 patients' constituting (4.41%), then others in 5 patients' constituting (7.35%).

Table 3: Distribution of patients based on Co-morbidities of patients with AP

Co-Morbidities	No. of Cases	Percentage (%)
Diabetes mellitus	22	(32.3%)
Hypertension	14	(20.5%)
Thyroid disorders	1	(1.47%)
Pulmonary disorders	0	0
Cardiac disorders	3	(4.41%)
Others	5	(7.35%)

Risk Factors

The majority of the risk factors examined were alcohol intake (n = 38), which made up 55.8% of the patients, followed by gallstones in 5 patients (7.35%). Hyper-triglycemia was found in 2 individuals (2.94%) next. Table 4 displays that 17 individuals (or 25%) had an idiopathic cause.

Table 4: Distribution of patients based on Risk factors of patients with AP

Risk Factors	Gender		Total (%)
	Male	Female	
Alcohol	36 (69.2%)	2 (12.5%)	38 (55.8%)
Gallstones	3 (5.76%)	2 (12.5%)	5 (7.35%)
Hyper triglyceridemia	2 (3.84%)	0 (0%)	2 (2.94%)
Others	7 (13.4%)	10 (62.5%)	17 (25%)

Clinical Characteristics

According to our study, the majority of patients (n = 67) or 98.5% of patients reported having abdominal pain, with 46 patients (or 67.6%) reporting vomiting afterward. Twelve patients (17.6%) had a fever next, and eight patients (11.7%) had constipation. Table 5 shows that 1 patient (1.47%) had jaundice.

Table 5: Distribution of patients based on Clinical characteristics of patients with AP

Clinical Characteristics	No. of Cases	Percentage (%)
Abdominal pain	67	98.5%
Vomiting	46	67.6%
Fever	12	17.6%
Constipation	8	11.7%
Jaundice	1	1.47%

Laboratory Investigation:

Serum lipase and amylase values that are high suggest acute pancreatitis. According to laboratory examinations, this study's 46 constituting patients had increased serum amylase levels (67.6%), while 22 contributing patients had normal levels (32.3%). Additionally, the serum lipase levels were elevated in fifty patients (73.5%) and normal in eighteen patients (26.4%). Haemoglobin, total count, serum albumin, and serum creatinine come next, as indicated in Table 6.

Table 6: Distribution of patients based on Laboratory investigations of patients with AP

Laboratory Investigation	No. of Cases (n=68)	
Serum Amylase	Normal Levels	22
	Elevated Levels	46
Serum Lipase	Normal Levels	19
	Elevated Levels	49
Hemoglobin	12.763	2.900
Total count	11277.206	4899.15
Serum Creatinine	0.7820	0.4376
Serum Albumin	3.278	0.834

Clinical Severity:

In this study, the clinical severity among 68 patients the majority of patients with mild (n=55) constituting (80.9%) of patients followed by moderate in 10 patients constituting (14.8%), next by severe in 3 patients (4.41%) as shown in table 7.

Table 7: Distribution of patients based on clinical severity of patients with AP

Clinical Severity	Mild	Moderate	Severe
No. of cases	55	10	3
Total (%)	(80.9%)	(14.8%)	(4.41%)

CT Severity Index:

In this study, the majority of the patients were having mild (Balthazar) CT severity index (CTSI) in 49 patients constituting (72.1%). Followed by moderate (CTSI) in 15 patients constituting (22.1%), severe in 4 patients (5.9%) as shown in figure 2 below.

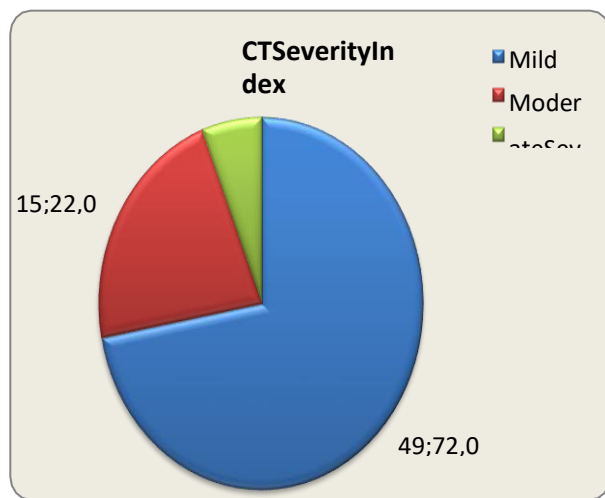


Figure 2: Balthazar CT severity index in patients with AP

CONCLUSION

68 patients with acute pancreatitis have participated in the current study. 52 male and 16 female patients were included in the study. The most prevalent age group (44.1%) has been impacted between the ages of 21 and 40. Males had a higher incidence of acute pancreatitis than females did due to higher alcohol use. Alcohol intake appears to be the most common risk factor. Gallstones and hypertriglyceridemia are the next most common causal variables, causing AP in 7.35% and 2.94 percent of patients, respectively. Idiopathic in 25% of cases. The most prevalent clinical feature appeared to be vomiting followed by stomach pain. CECT scan is helpful in diagnosing patients and in determining their severity using the CT Severity Index. CT Severity Index and Clinical Severity are correlated in our study. The majority of the patients had minor

illnesses and responded well to conservative care. When a problem does not improve, it is treated with less invasive techniques like image-guided PCD and progressed to surgery.

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Conflict of Interest

The authors declare no conflict of interest, financial or otherwise.

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