



**ORIGINAL RESEARCH PAPER**

**General Surgery**

**CLINICAL STUDY ON INCIDENCE ,AETIOLOGICAL FACTORS, AND SEVERITY OF ACUTE PANCREATITIS**

**KEY WORDS:** Acute pancreatitis, alcohol, Ranson's MCTSI

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**ABSTRACT**

**BACKGROUND:** Acute pancreatitis (AP) is the most common cause of acute abdomen. It is known for its wide presentations ranging from mild self-limiting pancreatic inflammation to extensive pancreatic necrosis with life threatening consequences. The objective of this study is to know the etiological factors of pancreatitis its incidence and its severity based on clinical scoring system.

**MATERIALS AND METHODS:** A prospective study was conducted in 100 patients of AP who were admitted in department of general surgery, in Government medical college omandurara estate Chennai. They were studied based on clinical history, biochemical markers, ultrasound and CECT signs of pancreatitis. .Ranson's criteria was assessed in first 24 hrs of admission.

**RESULTS:** The highest incidence was noted in 26-40 yrs of age group, with mean age of 39.9 yrs. Alcohol was the most common aetiology (60%). It had male predominance (68%). Based on Ranson's criteria it was found that 62% had mild pancreatitis, and 38% had severe pancreatitis. On MCTSI criteria 45% had mild pancreatitis 35% had moderate pancreatitis, 20% had severe pancreatitis.

**CONCLUSION:** AP is the most common cause of acute abdomen so assessing the severity helps in deciding the line of management.

**INTRODUCTION**

AP is a potentially life-threatening disease and the spectrum of severity ranging from mild self-limiting disease to a highly fatal severe necrotising pancreatitis.

The clinical definition of AP requires two of the following three features

- Abdominal pain strongly suggestive of AP
- Serum amylase and/ lipase activity 3 times the upper limit of normal
- Characteristic imaging findings of AP

**Aetiology of pancreatitis**

- Alcohol
- Gall stones/ choledocholithiasis
- Post ERCP
- Trauma
- Drugs (azathioprine, 6- mercaptopurine, sulphonamides,

oestrogens, tetracyclines, valproate)

- Infections
- Hypertriglyceridemia
- Postoperative
- Tumour (pancreatic ductal carcinoma, ampullary carcinoma, islet cell tumour)
- Developmental anomalies (pancreas divisum, sphincter of Oddi dysfunction) hereditary pancreatitis
- Autoimmune pancreatitis

**Pathophysiology of pancreatitis**

There are three phases in pancreatitis

- In the first phase there is premature activation of trypsin within the acinar cells which further activates various other injurious pancreatic digestive enzymes.
- In the second phase there is intra pancreatic inflammation
- In the third phase there is extra pancreatic inflammation

**Mild acute pancreatitis**

It is characterised by minimal or no organ dysfunction. Without parenchymal necrosis and by a prompt, uncomplicated recovery.

**Severe acute pancreatitis**

The presence of organ failure (at least one of respiratory/ cardiovascular/renal) for more than 48 hrs is defined as severe pancreatitis.

There are many clinical scoring systems like Ranson's criteria, CTSI scores, APACHE -, Glasgow, but most commonly the severity

assessment of AP is done using Ranson criteria at the time of admission and at first 48 hr of admission. Another criteria is CTSI proposed by Balthazar EJ et al a radiological prognostic scoring system. But it had limitations so **modified CT severity index (MCTSI)** by Mortelet et al (2004) was created,

**MATERIALS AND METHODS**

This was a prospective study conducted in 100 patients who were admitted in department of general surgery in Government medical college, omandurar estate Chennai during the period of June 2016 to June 2018. After detailed clinical history, resuscitation, examination, laboratory investigations and imaging all the data were analysed concerning aetiology, gender wise distribution, age group wise distribution, as well as severity was assessed using Ranson's score and MCTSI scores. Ranson's criteria is based on 11 clinical and laboratory parameters measured at the time of admission and at 48 hrs of admission. Ranson's score of < 3 is defined mild pancreatitis and scores with ≥3 is defined as severe pancreatitis. According to MCTSI scores with 0-2 were termed mild pancreatitis, 4-6 were moderate pancreatitis, and 8-10 were called severe pancreatitis.

**RESULTS**

In this prospective observational study consisting of 100 cases of pancreatitis (n = 100) the following results were observed.

From table 1(a), we could observe that the highest incidence was seen in age group of 26-40. The mean age was found to be 39.9 yrs (table 1 b). According to our study there was male predominance 68 % (table 2) , Alcohol was found to be the most common cause 60%, followed by gall stones about 26.25 % (table 3). As per Ranson's score (table 4) 62% had mild pancreatitis, 38% had severe pancreatitis. Based on CT features and MCTSI scoring system (table 5) 45% had mild pancreatitis, 35% had moderate pancreatitis, and 20% had severe pancreatitis.

**DISCUSSION**

**Age wise distribution**

This study demonstrates that pancreatitis has highest incidence in the age group of 26-40 yrs, about 40%, with the mean age of 39.9 yrs. This is in comparison to study by Balthazar et al (1985) in which the average was 45 yrs. In another study done by Khanna et al the mean age of pancreatitis was found to be 40.5 yrs.

**TABLE 1(a): AGE WISE DISTRIBUTION**

AGE GROUP	NO OF PATIENTS (n=100)	PERCENTAGE OF PATIENTS (%)
11-25	16	16 %

26-40	40	40 %
41-55	26	26 %
56-70	18	18 %

**TABLE 1 (b): STUDIES COMPARISON OF MEAN AGE**

	PRESENT STUDY	Balthazar et al Study	Khanna et al study
MEAN AGE	39.9 yrs	45 yrs	40.5 yrs

**Gender wise distribution**

In this study we could see that male had higher incidence of about 68% out of total patients compared to females 32%, with a male female ratio of 2.21:1 This is in comparison to study by Balthazar et al in which there were 75% male patients, and in another study by Kim et al in which 70% were male.

**TABLE 2: GENDER WISE DISTRIBUTION**

GENDER	NO OF PATIENTS (n=100)	PERCENTAGE OF PATIENTS (%)
MALE	68	68 %
FEMALE	32	32 %

**Based on Aetiological factors**

In this study we could see that alcohol was the most common cause 68%, this is because the younger age group was most commonly affected. The second most common cause was gall stones of about 26.25% and other miscellaneous causes like trauma, infections were 13.75%. This is in comparison to study by, Chowdhury P et al alcohol was the major cause of pancreatitis of about 60% of patients .

**TABLE 3: DISTRIBUTION ACCORDING TO AETIOLOGY**

AETIOLOGICAL FACTORS	NO OF PATIENTS (n=100)	PERCENTAGE OF PATIENTS (%)
ALCOHOL	58	60 %
GALL STONES	28	26.25 %
TRAUMA	6	7.5 %
OTHERS	8	6.25 %

**Based on Ranson score**

In this study by applying Ranson's score, 62% of patients were found to have mild pancreatitis, and 38% had severe pancreatitis. This is in comparison to a study by Papachristou GI et al there were 74.6% of mild pancreatitis cases and 25.4% had severe pancreatitis. In another study by Cho J H 87% had mild pancreatitis and 13% had severe pancreatitis.

**TABLE 4: DISTRIBUTION OF PATIENTS ACCORDING TO RANSON'S SCORE**

SEVERITY	NO OF PATIENTS (n=100)	PERCENTAGE OF PATIENTS (%)
MILD < 3	62	62 %
SEVERE > 3	38	38 %

**Based on MCTSI score**

From this study by applying Modified CTSI score it showed that 45% had mild pancreatitis (0-2), 35% had moderate pancreatitis (4-6), 20% had severe pancreatitis (8-10). This is in comparison to study by Morteale et al (2004), 63.3% patients had mild pancreatitis, 28.78% had moderate pancreatitis, 7.57% had severe pancreatitis.

**TABLE 5: DISTRIBUTION OF PATIENTS ACCORDING TO MCTSI SCORE**

MCTSI	NO OF PATIENTS (n=100)	PERCENTAGE OF PATIENTS (%)
MILD (0-2)	45	45 %
MODERATE (4-6)	35	35 %
SEVERE (8-10)	20	20 %

**CONCLUSION**

AP is the most common cause of acute abdomen in cases presenting in surgery emergency department. Though most of them are mild to moderate in presentation and self-limiting 10-

20% develop progressive inflammatory response associated with long hospital stay and significant morbidity. Alcohol was found to be the most common aetiology because it had high incidence in younger age group Thus it shows that it's a preventable cause. Pain abdomen is the most common presenting symptom. Serum amylase/lipase, ultrasound, CECT abdomen are routinely done to assess the severity, thereby helps in deciding the line of management. Most of them are treated conservatively only few need surgical interventions. Severe pancreatitis is associated with increased morbidity and complications. Thus early diagnosis and prompt treatment are necessary to prevent complications.

**REFERENCES**

- Balthazar EJ ,Ranson JHC ,Naidich DP, Megibow AJ, Caccavale R , Cooper MM. Acute pancreatitis; Prognostic Value of CT Radiology. 1985;156:767-72
- Khanna AK , Meher, S , Prakash S, Tiwary SJ, Singh U, Srivastava A et al. Comparison of Ranson , Glasgow, MOSS ,SIRS, BISAP,APACHE- , CTSI Scores, IL-6, CRP, and Procalcitonin in Predicting Severity, Organ Failure, Pancreatic necrosis, and Mortality in Acute Pancreatitis. HPB Surgery .2013 :367581:1-10
- Kim YS, Lee BS , Kim SH ,Seong JK ,Jeong HY, Lee HY. Is there correlation between pancreatic enzyme and radiological severity in acute pancreatitis? World J Gastroenterol.2008;14:2401-05.
- Papachristou GI, Muddana V, Yadav D,O'Connell M,Sanders MK, Slivika A et al Comparison of BISAP ,Ranson's, APACHE - , and CTSI scores in predicting organ failure, complications, and mortality in acute pancreatitis. Am J Gastroenterol.2010;105:435-41.
- Morteale KJ , Weisner W, Intriore L. A modified CT severity index for evaluating acute pancreatitis : improved correlation with patient outcome. AJR Am J Roentgenol.2004;183:1261-5.
- Schenker S , Montalvo R. Alcohol and the pancreas . Recent Dev Alcohol 1998;14:41-65.
- Chowdhury P, Gupta P. Pathophysiology of alcoholic pancreatitis: An overview. World J Gastroenterol 2006;12(46):7421-7427.