



ASSESSMENT OF CORRELATION BETWEEN SERUM LIPASE LEVELS AND CT SEVERITY INDEX IN ACUTE AND RECURRENT PANCREATITIS CASES

Gastroenterology

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ABSTRACT

Background: Acute pancreatitis is a severe inflammation of the pancreas, and early assessment of its severity is crucial for proper treatment and monitoring. Diagnosis is made through clinical presentation, laboratory investigations, and imaging. Computed tomography (CT) is the primary imaging modality, and serum lipase levels are linked to the severity of pancreatitis. **Aim:** To assess the correlation between serum lipase levels and CT severity index (CTSI) in acute and recurrent pancreatitis cases. **Methods:** Case records of patients diagnosed with pancreatitis were retrospectively analyzed. The diagnosis was confirmed using biochemical markers, and severity was assessed by CTSI at admission. **Results:** 95 cases were analyzed, 55 were acute pancreatitis cases, and 40 were recurrent pancreatitis cases. There was no significant correlation between serum lipase levels and CTSI in both groups. **Conclusion:** The study revealed that there is no significant correlation between serum lipase levels and CTSI in acute and recurrent pancreatitis cases. This indicates that even with a mild elevation of serum lipase, the underlying pancreatitis could be severe.

KEYWORDS

Acute pancreatitis, Recurrent pancreatitis, lipase, CT Severity Index

BACKGROUND

Acute pancreatitis is inflammatory process of the pancreas with involvement of pancreatic parenchyma and regional or remote organ systems. Early assessment of cause and severity of acute pancreatitis is of utmost clinical importance in instituting treatment with close monitoring of the patients, preferably in intensive care units. Diagnosis of acute pancreatitis is made by combination of clinical presentation, laboratory investigations and imaging. Serum amylase, lipase, liver function test, serum electrolytes with blood gas analysis are the commonly performed laboratory investigations which help to grade the severity and prognosis of acute pancreatitis based on several clinical criteria including BISAP.

Computed tomography is the most important imaging modality for diagnosis and staging acute pancreatitis. Based on CT findings of pancreatic enlargement along with pancreatic necrosis and adjacent collection helps in classify acute pancreatitis into mild and severe form and thereby predict the morbidity and mortality of the disease. Detection of necrosis and quantification of severity of acute pancreatitis is necessary to improve medical care and lower mortality rates.

AIMS AND OBJECTIVES

To assess the correlation between serum lipase levels and CT severity index in acute and recurrent pancreatitis cases.

MATERIALS AND METHODS

- All the case records of patients diagnosed with Pancreatitis in the General medical wards III and VI during 2018 (January to December) were analyzed.
- The study was conducted in the Government General Hospital, Guntur.
- The diagnosis of pancreatitis in all the patients was established using the required biochemical markers and the severity assessed by CT severity index (CTSI) at the time of their admission.

- Ethics committee clearance obtained.

Study Design

Retrospective study.

Inclusion Criteria

All the cases of acute and recurrent pancreatitis were included.

Exclusion Criteria

Case records lacking computed tomography assessment.

Statistical Analysis

Data and tables were tabulated using MS Word 2016. Statistical analyses were made using SPSS 16.

RESULTS

Total of 95 cases were analyzed. 7 were females and 88 were males. All the cases were divided into two groups. Group 1 consisting 55 acute pancreatitis cases and Group 2 consisting 40 cases of recurrent pancreatitis cases.

The mean age, mean serum lipase and mean CTSI of Acute pancreatitis group were 34.418 ± 9.304 , 1048.327 ± 811.674 and 3.63 ± 2.24 respectively. The mean age, mean serum lipase and mean CTSI of Recurrent pancreatitis group were 34.15 ± 9.028 , 877.225 ± 602.641 and 2.775 ± 1.64 respectively (Table 1).

The mean episode of recurrence in group 2 was 2.85.

The strength of correlation between serum lipase and CTSI in the Group 1 was calculated using Pearson Correlation Coefficient. The correlation coefficient 'r' of -0.005659 was obtained with a corresponding p-value of 0.971099; which was statistically not significant. (FIG. 1)

Similarly, the strength of correlation between serum lipase and CTSI in the Group 2 was also calculated which yielded a r value of -0.216469 with a corresponding p-value of 0.180685; which was statistically not significant. (FIG. 2)

Table 1. Showing Mean values in both groups.

Groups	Mean Age	Mean S. Lipase	Mean Ctsi
Acute Pancreatitis	34.418±9.304	1048.327±811.674	3.63±2.24
Recurrent Pancreatitis	34.15±9.028	877.225±602.641	2.775±1.64

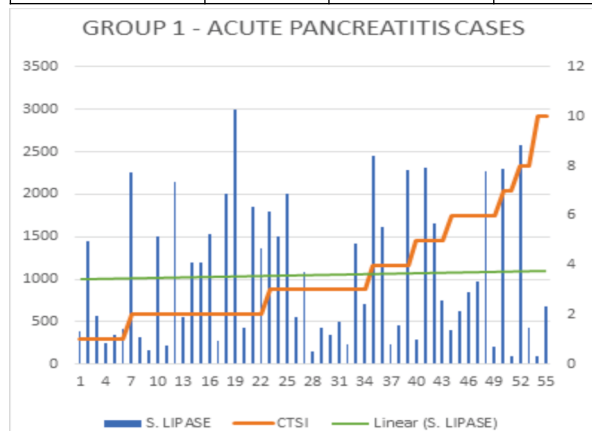


Fig 1. Correlation between Serum Lipase and CTSI in Acute Pancreatitis group.

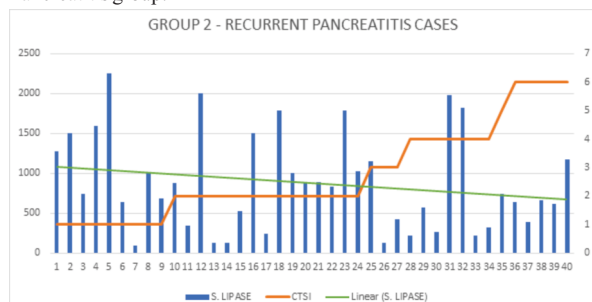


Fig 2. Correlation between Serum Lipase and CTSI in Recurrent Pancreatitis group.

DISCUSSION

Lipase assay has a sensitivity and specificity of 80% and 60%, respectively [1, 2]. The serum concentration of lipase increases within 3–6 hours of onset of disease and peaks within 24 hours [3]. The increased serum level stays for around 7–14 days before it comes down to the normal level [3, 4]. In contrast to amylase, lipase is reabsorbed in renal tubules and stays for long at higher concentration, thereby giving greater sensitivity in patients with delayed presentation [3, 4]. Pancreatic lipase is four times more active than amylase and it is less affected by exocrine pancreatic deficiency occurring in patients of chronic pancreatitis [4, 5]. Hypertriglyceridemia does not influence the serum lipase assay as happens in the case of serum amylase.

CTSI correlates well with the clinical severity [6] and therefore with prognosis [7].

Serum Lipase levels are frequently linked to severity of pancreatitis in routine practice. But the study made by Swaroop V S et. al. proved that serum lipase is a poor predictor of severity [8]. The present study reaffirmed that the severity of pancreatitis, both acute and recurrent cases, does not correlate with the serum lipase levels.

CONCLUSION

Our study revealed that there is no significant correlation between the serum lipase levels and CTSI either in acute pancreatitis or recurrent pancreatitis groups. This study therefore highlights the fact that even with a milder elevation of serum lipase, the underlying pancreatitis could be much severe.

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