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Original Research Paper

Radio-Diagnosis

CORRELATION OF MODIFIED CT SEVERITY INDEX WITH CLINICAL OUTCOME IN PATIENTS OF ACUTE PANCREATITIS

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ABSTRACT Acute pancreatitis is one of the common causes of the pain abdomen. CECT plays an important role in the diagnosis and management of the disease. The modified CT Severity Index which we are using gives an idea of the inflammation of the pancreas, necrosis and extra pancreatic complications. The present study is a prospective correlative study done on the patients with acute pancreatitis which is confirmed either clinically/ hematologically/ radiologically. CECT abdomen was done and the patients were categorized into mild, moderate and severe pancreatitis. The various clinical outcome parameters were taken and correlated with the severity on CECT. In our study we found that CECT is a valuable tool in diagnosing, evaluating the extent of the disease and complications and it if found correlating excellently with the clinical outcome of the patients.

KEYWORDS : Pancreatitis, Pleural effusion, Cholelithiasis

INTRODUCTION

Acute Pancreatitis is one of the most common conditions causing pain abdomen. It is classified into two types – edematous and necrotizing. In the majority of cases, it is mild and resolves with conservative therapy. In some cases the disease is severe and may lead to significant morbidity and mortality, usually due to multi organ failure or complications as a result of infected necrosis (1).

Most common causes include gall stones and alcoholism. Other causes include trauma, metabolic disorders, iatrogenic, tumours and congenital anomalies. (2) Normally pancreas is well visualized in computed tomography surrounded by the fat in an average person. It has homogenous CT attenuation and is identified by its relationship to the superior mesenteric artery and the duodenum(3). Peak enhancement of normal pancreatic parenchyma is about 50-80 Hounsfield Units (HU) (4)

The role of imaging is not only to diagnose acute pancreatitis but to demonstrate the presence and extent of pancreatic necrosis and the complications of acute pancreatitis. CECT is the investigation of choice in the evaluation of patients with acute pancreatitis (5)

Alcoholism is a serious health as well as a socio economic hazard, which is one of the major cause of acute pancreatitis in our part of the country. Devising a scoring system which is valid and accurate in predicting the course and outcome of the acute pancreatitis and its associated complications will be of great help in managing this serious disease entity.

AIM:

To study was done to correlate the modified CT severity index with the clinical outcome in patients of acute pancreatitis.

METHODOLOGY:

The study was a prospective study conducted for a period of one year over 50 patients who were diagnosed with acute pancreatitis through history, hematological investigations in Konaseema institute of medical sciences, Amalapuram.

Inclusion criteria:

All the patients referred to the department of Radiology with clinical or hematological or radiological diagnosis of acute pancreatitis and are willing for CECT.

Exclusion criteria:

1) Patients with known allergy to iodinated contrast media.
2) Patients with deranged kidney function tests.
3) Pregnant patients.
4) Patients not willing for the CECT

Demographic data, clinical history and history suggestive of possible etiology were taken. Patients underwent contrast enhanced computed tomography scan of the abdomen and pelvis on GE 16 slice CT scanner. The images were reconstructed and viewed in work station and the severity was categorized into mild, moderate and severe pancreatitis using Modified CT Severity Index. The clinical outcome parameters like length of hospital stay, need for surgical intervention, evidence of infection in any organ system, evidence of organ failure and death were collected.

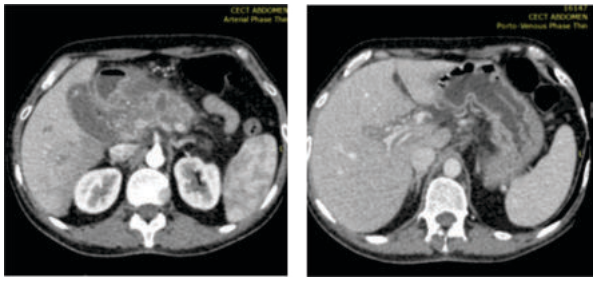

Figure -1 &2: Axial CECT images of abdomen showing bulky pancreas with multiple nonenhancing hypodense areas within and also a partial filling defect in the portal vein.

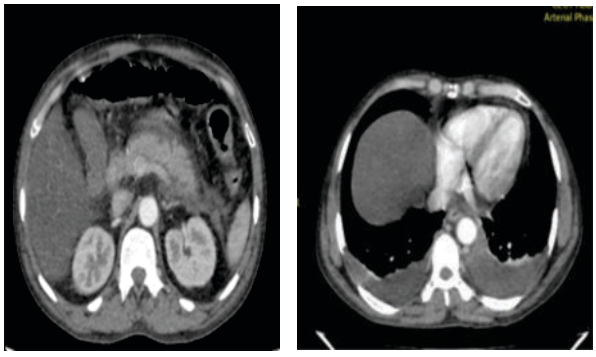

Figure – 3 & 4: Axial CECT images of the abdomen showing bulky and edematous pancreas with homogenous enhancement and peripancreatic fat stranding and fluid collection and bilateral mild pleural effusion.

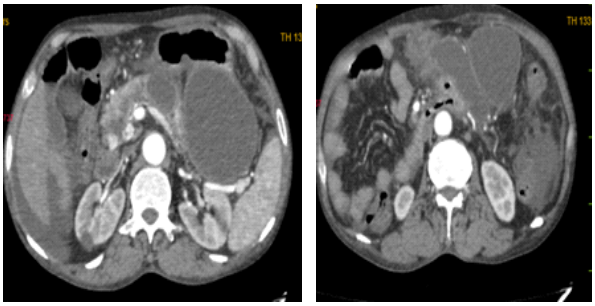

Figure – 5 & 6: Axial CECT images of the abdomen in arterial phase showing two well defined thin walled fluid collections seen anterior to pancreas displacing the stomach anteriorly.

RESULTS:

The mean age of the patients was 34 years. Male to female patient ratio is 2:1 Cholelithiasis and alcoholism are the two most common causative factors of acute pancreatitis.

Table -1: Etiology of pancreatitis:

Extra pancreatic complication	No. of Cases	Percentage (%)	
Pleural effusion		28	56
Ascites		18	36
Extra-pancreatic parenchymal abnormality	Infarction	1	2
	Haemorrhage	0	0
	Subcapsular collection	5	10
Vascular complication	Venous Thrombosis	4	8
	Pseudoaneurysm	2	4
Gatrointestinal complications		13	26

Extra pancreatic complications:

In our study pleural effusion was the most common extra-pancreatic complication which is found in 28 patients (56%). Second most complication is ascites found in 36% of patients. Venous thrombosis is the most common vascular complication.

Table-2: Extra pancreatic complications

Extra pancreatic complication	No. of Cases	Percentage (%)	
Pleural effusion		28	56
Ascites		18	36
Extra-pancreatic parenchymal abnormality	Infarction	1	2
	Haemorrhage	0	0
	Subcapsular collection	5	10
Vascular complication	Venous Thrombosis	4	8
	Pseudoaneurysm	2	4
Gatrointestinal complications	13	26	

Majority of patients in our study was severe pancreatitis (44%). 38% of patients were of moderate pancreatitis and 18% were of mild pancreatitis.

Table-3: Clinical outcome parameters and modified CTSI

Clinical outcome Factor	Modified CT Severity Index		
	Mild	Moderate	Severe
Number of patients	9	19	22
Length of hospital stay in days	1.5	6.9	14.2
Intervention	0	2	8
Infection	0	1	9
Organ Failure	0	1	7
Death	0	0	2

DISCUSSION:

Majority of the patients in our study population were classified as severe acute pancreatitis. The most common extra-pancreatic complication is pleural effusion. There is significant correlation between the acute pancreatitis severity based on MCTSI and the clinical outcome. There is increase in the duration of the hospital stay as the severity grading increases. Also there is increase in the need for surgical intervention, chance of occurrence of infections as the MCTSI grading increases. The study by Irshad et al showed similar results like ours, showing significant association between the CT severity grading and clinical parameters including duration of the hospital stay, intervention procedure, occurrence of organ failure and mortality. (6)

CONCLUSION:

CECT was an excellent imaging modality for diagnosing, and its severity grading. In our study, MCTSI had a stronger correlation with the clinical outcome, whether it is duration of hospital stay, development of associated infections, organ failure occurence and overall mortality. It also predicts the need for interventional procedures. MCTSI can be a reliable and also simple tool in acute clinical setting as a predictor of adverse clinical outcome.

REFERENCES:

1) Dc W. Clinical practice. Acute pancreatitis. N Engl J Med. 2006;354(20): 214250.
2) Lin A, Feller ER. Pancreatic carcinoma as a cause of unexplained pancreatitis: report of ten cases. Annals of Internal Medicine. 1990 Jul 15;113(2):166-7.
3) Redman HC. Standard radiologic diagnosis and CT scanning in pancreatic cancer. Cancer. 1981 Mar 15;47(S6):1656-61.
4) Balthazar EJ, Robinson DL, Megibow AJ, Ranson JH. Acute pancreatitis: value of CT in establishing prognosis. Radiology. 1990 Feb;174(2):331-6.
5) Banks PA, Freeman ML, Practice Parameters Committee of the American College of Gastroenterology. Practice guidelines in acute pancreatitis. Official journal of the American College of Gastroenterology| ACG. 2006 Oct 1;101(10):2379-400.
6) Banday IA, Gattoo I, Khan AM, Javeed J, Gupta G, Latief M. Modified computed tomography severity index for evaluation of acute pancreatitis and its correlation with clinical outcome: a tertiary care hospital based observational study. Journal of clinical and diagnostic research: JCDR. 2015 Aug;9(8):TC01.