

A STUDY ON CLINICAL AND RADIOLOGICAL SEVERITY SCORING IN ACUTE PANCREATITIS WITH THE PANCREATIC DUCT PATTERN IN MRCP

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AIM

The purpose of this study was to examine the causes of MRCP findings of the pancreatic duct system, such as dilatation and strictures, in patients with pancreatitis and congenital abnormalities.

Determine the severity and prognosis of pancreatitis by using a clinical, biochemical, and radiological grading scheme.

RESULTS

The study comprised 100 people with various degrees of pancreatitis severity (acute, acute on chronic, and chronic). In the study, gallstones and alcohol were the leading causes, accounting for 92% of the cases studied. MRCP was shown to be the most effective method for detecting MPD changes such dilatation, disruption, and stenosis. Twenty-two (22% of the patients) met the criteria for severe acute pancreatitis based on Ranson's criteria, whereas the remaining seventy-eight (78%) met the criteria for acute mild pancreatitis.

CONCLUSION

In conclusion, the study found that alcohol use is a major risk factor for developing acute and chronic pancreatitis. It was shown that gallstones were the leading cause of this problem in females. The severity of pancreatitis may be evaluated using Ranson's score. Although it cannot detect ductal changes, a contrast-enhanced CT scan is an effective diagnostic tool for pancreatic necrosis. When it comes to diagnosing biliary and pancreatic duct obstruction, MRCP is superior.

INTRODUCTION:

When pancreatic digestive enzymes are activated prematurely, they induce inflammation of the pancreas and surrounding tissues, a condition known as acute pancreatitis. Some of the symptoms include pain in the upper abdomen, a threefold rise in blood lipase and amylase levels, and unique imaging abnormalities on a contrast-enhanced CT scan.¹ Extreme pain, as well as exocrine and endocrine insufficiency, are the results of chronic pancreatitis, an inflammatory disease that damages the pancreatic parenchyma irreparably. Pancreatitis affects anywhere from 5.0 to 50.0 individuals per million annually, with India having an estimated 7.9 cases per million.² The male to female ratio in India is 8.6:1, whereas the female to male ratio is 8.0:1. Pancreatitis is a serious digestive disorder, and gallstones and alcohol use are the most common causes (accounting for 70-80% of cases).³ Alcohol-induced pancreatitis is characterised by decreased pancreatic perfusion, sphincter of oddi spasm, and pancreatic duct obstruction, while gallstone-induced pancreatitis is caused by either high pancreatic duct pressure or bile salt reflux into the pancreas. Pain in the upper abdomen, discomfort in the epigastric region that may or may not radiate to the back, nausea, and vomiting are all symptoms of acute pancreatitis. Chronic pain that does not respond to typical painkiller doses and is occasionally alleviated by bending forward.^{4,5} A patient with moderate pancreatitis may have no symptoms or slight epigastric discomfort, whereas a patient with severe acute pancreatitis may be quite ill with symptoms ranging from severe pain to shock.⁶ Intermittent pain, endocrine dysfunction (such as diabetes), weight loss, and steatorrhea are all symptoms of chronic pancreatitis. The severity of pancreatitis may be measured using a variety of scales, including Ranson's score, the Glasgow score, the APACHE-II score, the BISAP score, the SOFA score, the HAP score, and many more.^{7,8} Since their positive predictive values are only about 50%, the Ranson and Glasgow scores have been surpassed in recent years by APACHE II.⁹ Age, blood pressure, heart rate, arterial blood gas analysis, and serum creatinine are only few of the metrics tracked by APACHE II. Meaningful aims and purposes: The purpose of this study was to examine the causes of MRCP findings of the pancreatic duct system, such as dilatation and strictures, in patients with pancreatitis and congenital abnormalities. Determine the severity and prognosis of pancreatitis by using a clinical, biochemical, and radiological grading scheme.^{10,11}

REVIEW OF LITERATURE

Acute and chronic pancreatitis are both explored in this literature review, along with their respective definitions, types, causes, and symptoms. Upper abdominal pain, a threefold increase in blood lipase and amylase, and unique imaging abnormalities on contrast-enhanced CT Scan are all hallmarks of acute pancreatitis.¹² Extreme pain, exocrine and endocrine dysfunction, and

irreversible parenchymal destruction are the results of chronic pancreatitis, a chronic inflammatory illness. Pancreatitis affects anywhere from 5.0 to 50.0 individuals per million annually, with India having an estimated 7.9 cases per million.¹³ The most common triggers for pancreatitis are acute gallstones and persistent alcohol abuse. Gallstones are the most frequent cause of acute pancreatitis, but alcohol abuse is the leading cause of chronic pancreatitis. High alcohol consumption, smoking at the same time, genetic predisposition, and other risk factors are all discussed in the literature as contributors to alcohol-induced pancreatitis.¹⁴ Hereditary pancreatitis, autoimmune pancreatitis, pancreas divisum, and other causes of pancreatitis are also significant, as are abdominal trauma, hepatobiliary tract, upper gastrointestinal tract, and cardiothoracic surgery, hyperparathyroidism, hypercalcemia, and hypercalciuria. This study takes a look at the signs and symptoms of both acute and chronic pancreatitis, as well as the many different scales used to quantify the severity of the condition. **CONTENT AND APPROACHES:** Study participants will be observed for two years at Cuttack's S.C.B Medical College and Hospital. One hundred participants with confirmed diagnoses of acute pancreatitis on the basis of clinical, biochemical, and imaging data participated in the study. Patients diagnosed with pancreatitis between the ages of 18 and 70 were eligible for inclusion; those younger than 18 or older than 70, as well as those with intra-abdominal or retroperitoneal tumours, who have recently undergone biliary tract surgery, or who are known to have carcinoma pancreatica were not.¹⁵ Among the imaging studies that were performed was an abdominal ultrasound, a CT scan with contrast, and a Magnetic Resonance Cholangiopancreatography (MRCP). A radiologist assessed the MRCP images without knowledge of the patient's clinical and biochemical data, the reasons for or results of any subsequent imaging tests, or the final diagnosis. The resulting image was used to assess acute pancreatitis severity with conventional clinical, biochemical, and radiological measures.¹⁶

INCLUSION CRITERIA:

Patients admitted to Dept. of General surgery, SCBMCHC, Cuttack with signs suggestive of acute pancreatitis from sept 2019 to sept 2021.

Patients with 3-fold elevation of serum lipase and amylase along with clinical signs of pancreatitis; and exclusion of other causes of enzyme elevation.

Patients with usg and cect findings of acute pancreatitis.

Patients of both genders between 18-70 yr with pancreatitis.

EXCLUSION CRITERIA:

Patients of age less than 18 yrs ND older than 70 yrs.

Any intra- abdominal or retroperitoneal tumours, intra-abdominal inflammations other than pancreas or any other haemorrhagic disease.

Recent surgery of billiary tract.

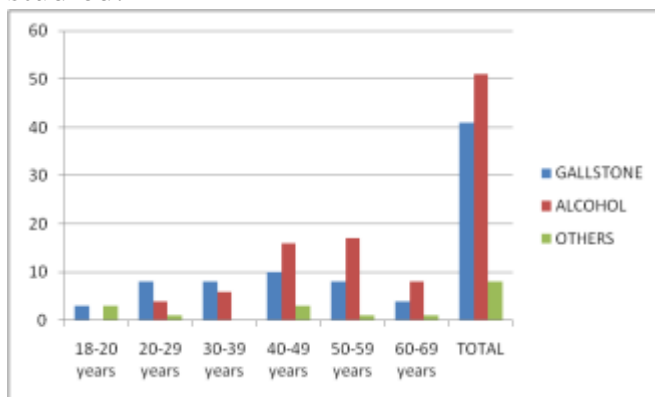
Patient with known case of carcinoma pancreas or any other pancreatic disease

Usual contraindication of MRI like presence of pacemakers, intraocular metallic

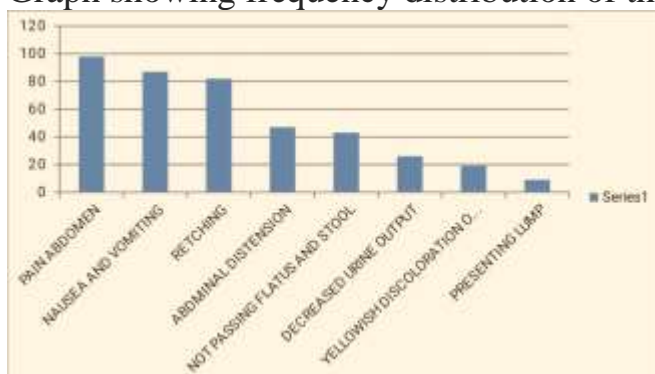
foreign body, cerebral aneurysm clips, caval and intravascular implants as well as claustrophobia were specifically excluded.

OBSERVATION:

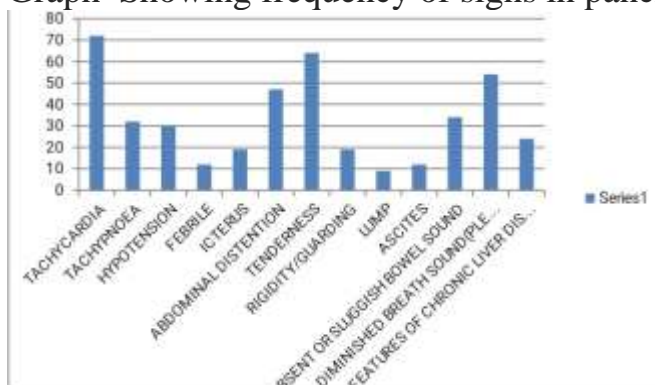
Graph Showing age of incidence of pancreatitis among all patients(n=100) studied.



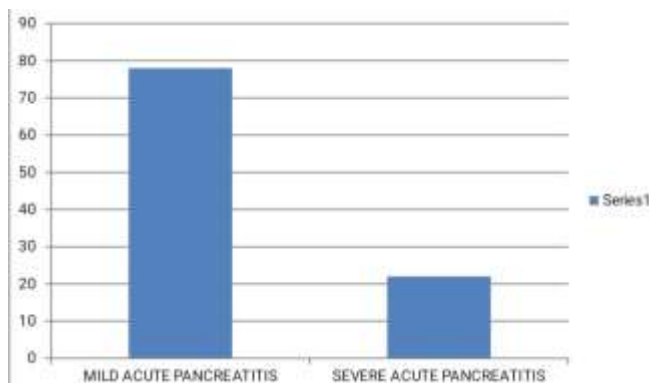
Graph showing frequency distribution of the symptoms in acute pancreatitis



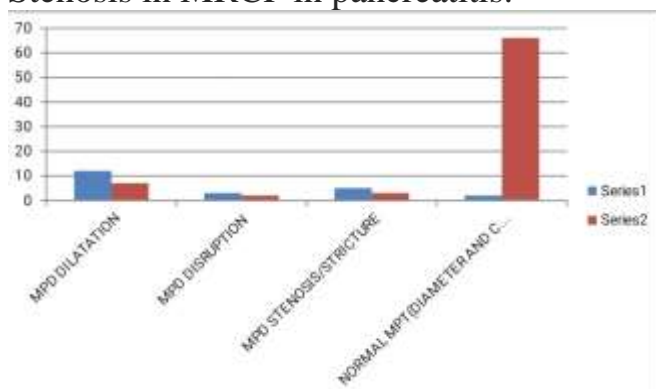
Graph Showing frequency of signs in pancreatitis.



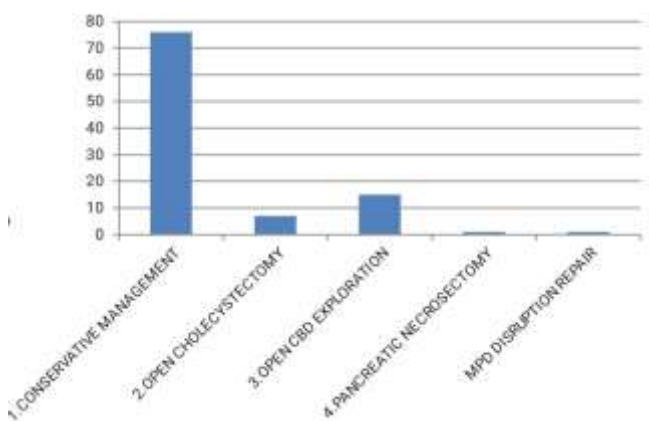
Graph Showing the incidence of severity of at SCBMCH, Cuttack in the study



Graph Showing the incidence of MPD Dilation, MPD Disruption and MPD Stenosis in MRCP in pancreatitis.



Graph Showing the types of interventions done other than cholecystectomy or CBD exploration in the patients of Pancreatitis enrolled in this study (n=100)



DISCUSSION:

According to the research, 98 out of 100 people with pancreatitis report experiencing abdominal discomfort. Likewise, many people experience nausea, vomiting, and retching. Common symptoms include paralysis of the ileum, renal involvement, and biliary blockage. Epigastric discomfort and tachycardia are the most often reported symptoms. Other symptoms of chronic liver disease include an enlarged abdomen and pleural effusion. Consistent with prior studies

on pancreatitis symptoms and clinical characteristics. Pancreatitis should be properly explored in patients with comorbid illnesses such as acute cholecystitis, perforated stomach, and gastritis.

According to the research, the leading causes of pancreatitis are gallstones and alcohol use. Gallstones were the cause of pancreatitis in 41% of patients, whereas alcohol was the cause in 51%. Pancreatitis caused by alcohol use is more common in men, whereas that caused by gallstones is more common in women. Pancreatitis mostly affects people between the ages of 40 and 59. The differences in reported instances might be attributable to regional differences in alcohol use and gallstone incidence. The results of this study are generally in line with the literature on the topic.

The paper discusses the diagnostic accuracy of USG and CECT for identifying a range of pancreatic and biliary tract disorders. The diagnostic efficacy of USG for gallstone disease is reported to be at 100%, whereas the sensitivity of CECT is just 75%. Acute pancreatitis may be diagnosed with USG because of abnormalities including enlarged glands and fluid accumulation. However, USG has a few drawbacks, such as operator reliance, the pancreas's retroperitoneal position, and a lack of ability to evaluate the gland's tail. Pancreatic enlargement, peripancreatic fluid collection, ductal dilation, and CBD calculi may all be detected with CECT. However, the diagnostic accuracy of CECT for ductal dilation is just 25%.

The purpose of this research was to summarise the findings from an investigation on the causes, symptoms, and tests used to diagnose pancreatitis. One hundred individuals were included in the research, and all three types of pancreatitis were represented. The patient's clinical presentation, including a threefold rise in amylase and lipase levels, together with the results of USG and CECT, confirmed the diagnosis of pancreatitis. All instances with suspected pancreatitis underwent MRCP for confirmation and documentation of ductal alterations. Gallstones and alcohol use were revealed to be the most common causes (included in 92%) in this research. The participants' most common symptom was abdominal pain. CECT was shown to be a good method for determining the severity of pancreatic parenchymal necrosis, while USG was proven to be a useful screening or main investigation for making the diagnosis. It was determined that MRCP was the most effective method for diagnosing MPD alterations including dilatation, disruption, or stenosis. Twenty-two (22% of the total) patients were diagnosed with severe acute pancreatitis based on

Ranson's criteria, whereas the other seventy-eight (78%) cases were diagnosed with acute mild pancreatitis.

The research concluded that alcohol use is the primary reason for both acute and chronic pancreatitis. In women, gallstones were identified as the primary culprit. Any patient complaining of epigastric pain and nausea or vomiting should have acute pancreatitis considered. In order to properly diagnose pancreatitis, a complete clinical history and physical examination are required. Pancreatitis severity may be evaluated using the Ranson's score.

Although it is useful in diagnosing pancreatic necrosis, contrast-enhanced CT scan cannot identify ductal alterations. When it comes to diagnosing ductal alterations and biliary and pancreatic blockage, MRCP is the gold standard. The severity of the illness is correlated with the number and location of ductal alterations. For early detection of MPD alterations and prognosis evaluation, MRCP should be performed urgently in all patients.

In conclusion, no matter the severity, all cases of pancreatitis need immediate medical attention and care. The findings of the research highlight the value of prompt identification and treatment in improving patient outcomes.

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