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Pancreatitis - A Review

*R Kishore kumar, M Radika, N Sriram , Ch. Madhava Reddy, Narasimha Rao Rama

Holy marry college of Pharmacy, Bogaram, Kesara, Hyderabad.

*Corresponding author: Kishore

E-mail: ramojukishorekumar@gmail.com

ABSTRACT

Pancreas is an organ which is present in abdominal region and generally it secretes some enzymes and hormones into body, some adverse conditions this gland will results in inflammation leads to auto destruction which leads to the inflammation of pancreas which is known as pancreatitis, They are of two types which is divided on the severity cases they do have they own diagnosis test, sign and symptom helps in identification and they do cured by proper treatment of the disease condition this is not a life threatening disease if it is not treated will that may leads to death of the subject and they do have to follow some life style modifications in order to cure the gland completely

KEY WORDS: Pancreas, Inflammation, Alcoholism, Pancreatitis.

INTRODUCTION

Pancreas secrete some digestive enzymes into duodenum through a tube called the pancreatic duct. Pancreatic enzymes join with bile to digest food not only digestive juices pancreas also secrete some hormones like glucagon, insulin which help in the body regulate the glucose it takes from food for energy¹. Pancreatitis is inflammation to pancreas; normally digestive enzymes secreted by the pancreas do not become active until they reach the small

intestine. In adverse conditions pancreas is inflamed, which leads to damage of the tissue that is characterized by the enzymes present inside it and this leads to pancreatitis. It is divided into two types

- Acute pancreatitis
- Chronic pancreatitis

Occurrence of pancreatitis differ with age and sex, race, Alcohol, Smoking (independent risk factor for acute and chronic pancreatitis, and its effects could synergize with those of alcohol).

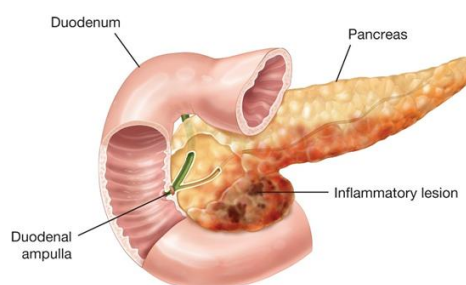


Fig.1. Pancreatitis²

ACUTE PANCREATITIS

The gland sometimes heals without any impairment of function or any morphologic changes; this process is known as acute pancreatitis³. It is a self-limiting and reversible pancreatic injury and fat necrosis in and around pancreas is termed as acute pancreatic necrosis. It is caused by a sudden inflammation that lasts for a short time it may be reversible. In severe cases acute pancreatitis can result in bleeding of the gland which leads to serious tissue damage, infection to organ and cyst formation. Severe damage to pancreas may lead to harm for some vital organs such as the lungs, heart and kidneys.

SIGNS AND SYMPTOMS

Symptoms which commonly represent acute pancreatitis are as follows:

- Abdominal pain which is sudden in onset and gradually becoming more severe until reaching a constant ache; most often located in the upper abdomen and may radiate directly through to the back.
- Nausea and vomiting, rarely with loss of appetite condition.
- Diarrhea.

Patients may have the following history conditions:

- Some invasive procedures or Recent operatives
- Family history with the condition of hypertriglyceridemia
- Alcohol consumption which is the major causes of acute pancreatitis.

The following physical findings which may be noted while diagnosing which help in varying the severity of the disease:

- Fever (76%) and abnormal rapid heart rate (65%)
- Abdominal tenderness, muscular guarding (68%), and distention (65%); diminished or absent bowel sounds Jaundice (28%)

ETIOLOGY

Mainly two causes which are associated with acute pancreatitis are alcoholism and cholelithiasis which are more implicated in more than 80% of cases. Less common causes include viral infections, shock, bacterial infections and some drugs (sulfonamides, oral contraceptives) and in some cases it is idiopathic pancreatitis⁴.

PATHOGENESIS OF ACUTE PANCREATITIS

The main key factor for acute pancreatitis is bile-pancreatic duct obstructions, which lead to increases in pancreatic duct pressure, bile reflux into the duct, trypsin activation and finally leads to pancreatic auto-digestion. Main preconditions that trigger acute pancreatitis are pancreatic hyper stimulation and obstruction of pancreatic-bile duct, which leads to increase in the pancreatic duct pressure, active trypsin reflux, and unregulated activation of trypsin within pancreatic acinar cells⁵. This kind of Enzyme activation within the pancreas leads to auto-digestion of the gland and local inflammation.

COMPLICATIONS

They are two types of complications who survives may develop following complications

Local (In the immediate area)

- Collection of fluid in the region which regards as pseudocyst.
- Pancreatic Abscess.
- Pancreatic ascites.
- Necrosis Systemic (Affecting the entire body)
- Hypocalcaemia-abnormally low blood calcium.
- Hyperglycemia.
- Chemical and bacterial peritonitis.
- Endo toxic shock.

DIAGNOSIS

In order to conclude acute pancreatitis following lab values of patient should be consider

- Immunoglobulin G4 (i4)
- Serum amylase and lipase
- Complete blood count (CBC) and hematocrit values
- Blood urea nitrogen (BUN), creatinine, and electrolytes values
- Liver-associated enzymes
- Serum cholesterol and triglyceride
- C-reactive protein (CRP)
- Arterial blood gas values
- Blood glucose levels

TREATMENT OF ACUTE PANCREATITIS

In order to maintain acute pancreatitis condition, Total restriction of oral intake of food should be done and by supportive therapy and Conventional mode of treatment include⁶. Patient with mild acute pancreatitis responds well to supportive care, nutrition, relief of pain and nausea which can be treated with normal doses of intravenous analgesics and antiemetic drugs like meperidine (i.v of 50 to 100 mg /ml), but in some conditions this meperidine may cause renal impairment in the patients who are suffering from renal diseases so drugs like intravenous morphine and hydromorphone are used in order to overcome mild abdomen pain. Antisecretory drugs may be use to prevent stress related mucosal bleeding There is no evidence that Antisecretory drugs (such as H2-receptor antagonists or proton pump inhibitors) prevent an exacerbation of abdominal pain in some cases electrolytes regulation may be done in order to overcome the conditions like hyperglycemia, hypocalcaemia which was caused due to some metabolic dysfunctions. Some of the examples for the control of acute pain are

ACETAMINOPHEN / OXYCODONE HYDROCHLORIDE

ADULTS

Oxycodone 5 to 20 mg/acetaminophen 325 to 1000 mg orally every 4 hours as needed; maximum 4 g acetaminophen/day

PEDIATRICS

0.05 to 0.15 mg/kg of the oxycodone ingredient orally every 4 hours as needed⁷

HYDROMORPHONE HYDROCHLORIDE

ADULTS

1 mg IV every 10 minutes titrated to effect OR 1 to 2 mg IM every 3 to 4 hours as needed

PEDIATRICS

10 to 20 mcg/kg IV every 3 to 4 hours as needed⁸

ROLE OF ANTIBIOTICS

The benefit of antibiotic prophylaxis in the treatment of necrotizing acute pancreatitis remains doubtful. It was no benefit of antibiotic Prophylaxis with regard to the risk of developing infected pancreatic necrosis.

CHRONIC PANCREATITIS

Long-lasting inflammation of the pancreas leads to chronic pancreatitis. It is characterized by recurrent or persistent abdominal pain, progressive injury to the pancreas and surrounding structures which results in scarring and loss of function of a organ will be happened. Unlike recurrent acute pancreatitis, it is characterized by reduced pancreatic exocrine function, diabetes, malabsorption and calcifications of pancreas. Heavy alcohol drinking is another cause. Damage of the pancreas from heavy alcohol usually may not cause symptoms for many years, but then a person may suddenly develop severe pancreatitis symptoms⁹.

SIGNS AND SYMPTOMS

- Nausea
- Vomiting
- Weight loss
- Diarrhea
- Oily stools

ETIOLOGY

Mostly it is caused by the same factors as for acute pancreatitis. Thus most commonly, chronic pancreatitis is related to protein rich diet with chronic alcoholism, and biliary tract disease. rarely due to developmental failure of fusion of dorsal and ventral pancreatic ducts

PATHOGENESIS OF CHRONIC PANCREATITIS

Several types of conditions have been developed to explain the pathogenesis of chronic pancreatitis.

- Stone and duct obstruction suggests that alcohol increases the lithogenicity of pancreatic juice and causes stone formation. Long time contact of the stones with duct epithelial cells produces ulceration, scarring, and obstruction of the acinar glands.
- Toxic-metabolic is that alcohol is directly toxic to the acinar cell through a change in intracellular metabolism¹⁰.
- Necrosis-fibrosis theory emphasizes that acute and chronic pancreatitis represents a spectrum of diseases. Inflammation from acute pancreatitis which leads to scarring and extrinsic compression of the pancreatic ductless.

COMPLICATIONS

Late stage of chronic pancreatitis may be complicated by diabetes mellitus, pancreatic insufficiency with steatorrhoea

TREATMENT OF CHRONIC PANCREATITIS

There are different treatments for management of chronic pancreatitis in medical measures, surgery and therapeutic endoscopy. Antioxidants may help but it is unclear if the benefits are meaningful.

PANCREATIC ENZYMES

Replacement pancreatic enzymes are effective for better in treating the malabsorption and Steatorrhea (presence of excess fat in feces). While the outcome of trials regarding pain reduction with pancreatic enzyme replacement is inconclusive, some patients do have a pain reduction with enzyme replacement and since they are relatively safe, giving this kind of treatment to a chronic pancreatitis patient is an acceptable step in treatment for most patients. This type of treatment is like to be successful in those patients who are without involvement of large ducts and those with idiopathic pancreatitis. But the chance of recovery by the pancreatic enzymes replacement treatment in the patient with the alcoholic pancreatitis is less¹¹. One of the best examples for pancreatic enzymes is

PANCRELIPASE

ADULTS (based on lipase component): Initially 500 lipase units/kg orally with meal; maximum 2500 units/kg/meal (or less than or equal to 10,000 units/kg/day), or less than 4000 units per gram of fat ingested per day; usually, half the mealtime dose is given with a snack; specific brands of pancrelipase are not interchangeable with other specific pancrelipase brands¹²

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SURGERY

Traditional surgery for chronic pancreatitis tends to be divided into two areas - resection and drainage procedures. Pancreatic resection (eg, Whipple procedure) is usually done on the pancreatic head, and helps in relieve pain in up to 85% of patients. Surgical blocking of a nerve supply to interrupt sensory fibers that pass through the splanchnic nerves and celiac ganglion has been used with some success to provide long-term pain control. During the course of chronic pancreatitis, approximately one-half of patients will require surgical management, usually applied when pain fails to respond adequately to medical and endoscopic therapies. Surgery may also be required to manage obstructive symptoms. Few controlled trials address surgical management of pancreatitis, and surgical approaches have developed as a result of attempts to improve pain and function¹³.

LIFE STYLE MODIFICATIONS

- Drink plenty of water
- Take low-fat diet food which help in reduction in chance of formation of gallstones
- Stop consuming alcohol and using of tobacco products
- lose excess weight by exercising daily
- Drink plenty of water

CONCLUSION

Pancreatitis is not a disease which can't be curable .it can be cured easily when the patient is properly diagnosed based on their signs and symptoms and diagnostic values and proper medications is necessary for control of the disease from acute pancreatitis conditions to the chronic pancreatic conditions if the patient is in such a condition that he/she is not responding to the treatment then it is better to undergo pancreatic surgery which helps in control of the diseases.

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