Risk Factors For Acute Pancreatitis

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ABSTRACT:

Acute Pancreatitis is an inflammatory condition of the pancreas which is characterized by abdominal pain and elevated pancreatic enzymes in the blood. Acute pancreatitis is one of the leading gastrointestinal cause of hospitalization in the United States. Etiology of acute pancreatitis is diverse with many causes attributed to it. Alcohol abuse and gallstones are the leading causes of acute pancreatitis. We a carried a literature search for etiology of acute pancreatitis using the online databases of PubMed, Embase, Scopus, Google Scholar. We reviewed the pertinent articles about acute pancreatitis and its etiology. The review is an attempt to provide a better understanding of the possible various etiologic causes of acute pancreatitis.

Key words:

pancreatitis, causes, etiology, risk factors, gallstones, alcohol

INTRODUCTION:

Acute pancreatitis (AP) is an inflammatory condition of the pancreas which is characterized by abdominal pain and elevated pancreatic enzymes in the blood.(1) AP may range from a mild self-limiting form to a more severe form (acute necrotizing pancreatitis). Gallstones and chronic alcoholism are the two most common etiological factors associated with AP. Other causes include drugs, infections, hyperlipidemia, trauma, hypercalcemia, HIV, neoplasms and idiopathic.(2)

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ETIOLOGY:

Here we discuss the important etiologies which can cause acute pancreatitis.

Gallstones

Gallstones are the most common cause of AP accounting for about 40 to 70 percent of cases.(3, 4). The risk of developing AP in patients with gallstones is more significant in men. However, women have a higher prevalence of gallstones, and the incidence of gallstone pancreatitis is

higher in women. Patients with gallstones of size less than 5 mm are thought to be at higher risk of gallstone pancreatitis.(5)

Alcohol

Alcohol intake is responsible for approximately 25 to 35 percent of cases of AP in the United States.(6) Cigarette smoking might have an additive effect along with alcohol in inducing pancreatitis. Alcohol may increase the secretion of lysosomal enzymes by acting on the pancreatic acinar cells.(7) Although the exact pathogenesis of alcohol-induced AP is still unclear.(8)

Hypertriglyceridemia

Serum triglyceride levels above 1000 mg/dL can cause AP.(9-11) Hypertriglyceridemia accounts for about 1 to 14 percent of cases of AP.(12) Pancreatitis secondary to hypertriglyceridemia is usually seen in the presence of one or more factors such as diabetes, alcoholism in the presence of an underlying common genetic abnormality like familial hypertriglyceridemia.(12, 13) Insulin and heparin along with other measures used for AP have been proposed as the treatment for AP due to hypertriglyceridemia.(11)

Post-endoscopic retrograde cholangiopancreatography (ERCP)

ERCP is associated with 3-5% of cases with AP.(14) The risk of Post ERCP AP is also related to the type of ERCP procedure being performed.(15) Studies have shown that patients undergoing ERCP for sphincter of Oddi dysfunction are more to develop AP when compared to other ERCP related procedures.(16)

Infections

Pancreatitis has been associated with multiple infections like Viruses (Mumps, hepatitis B, cytomegalovirus, herpes simplex, human immunodeficiency virus), Bacteria (Mycoplasma, Legionella, Salmonella), Fungi (Aspergillus) and Parasites (Toxoplasma, Ascaris).(17, 18)

Genetic risk

Mutations in CTRC gene, CFTR gene, PRSS1 gene, SPINK1 have been implicated in pancreatitis etiology.(19) Patients with pancreatitis due to genetic mutations usually present as recurrent bouts of AP or childhood pancreatitis before it progresses to chronic pancreatitis and complications related to pancreatitis.

Medications

Drug-induced pancreatitis is rare and accounts for less than 5% of the cases.(20) Prognosis of drug-induced AP is good, and mortality is low. The diagnosis of drug-induced pancreatitis is difficult to establish as it is a diagnosis of exclusion.(21) Common drugs implicated in causing AP include aminosalicylates, sulfonamides, diuretics, valproic acid, didanosine, pentamidine, tetracycline, azathioprine, steroids.(22-24) Recently Glucagonlike peptide 1-based therapies have been increasingly implicated in etiology of drug-induced AP.(25)

Idiopathic causes

Idiopathic causes can account up to 25% of the causes of AP. No etiology could be found on history, diagnostic tests or imaging. Research has shown recently that patient with idiopathic pancreatitis usually has complex genetic profiles.(26)

Other rare causes

Other rare causes of pancreatitis include Pancreatic duct injury, Biliary obstruction, Hypercalcemia, Vascular disease, Biliary sludge and microlithiasis, Anatomic pancreatic anomalies.(27-33)

CONCLUSION:

Etiology of AP can be established in most cases of AP. Although some cases can be challenging and in some patients, we may not find any etiology (idiopathic). Understanding the etiologic and risk factors of AP helps in formulating an appropriate management plan and helps to decrease the length of stay and cost associated with hospitalizations due to AP and might also lead to decrease in mortality due to AP.

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CONFLICTS OF INTEREST:

The authors do not have any conflicts of interest to disclose.

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