

Review Article

Risk factors for pancreatitis: a literature review

Glendy Alejandra Martínez*

Facultad de medicina, Universidad Autónoma de Sinaloa, Culiacán, Sinaloa, México

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***Correspondence:**

Dr. Glendy Alejandra Martínez,

E-mail: Glendymartinez1395@gmail.com

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ABSTRACT

Pancreatitis is an inflammatory disease of the pancreas that can have serious consequences for the health of patients. Understanding the risk factors associated with this condition is critical to its prevention, early diagnosis, and proper treatment. In this literature review article, we present a synthesis of the updated scientific literature on the risk factors for pancreatitis, their epidemiology, clinical significance, diagnosis, surgical treatment, complications and a discussion on the clinical implications of these findings. In addition, it concludes by highlighting the importance of identifying and addressing these risk factors in a comprehensive manner to improve the management of this disease.

Keywords: Pancreatitis, Risk factors, Management

INTRODUCTION

Pancreatitis is an inflammatory disease of the pancreas that can have serious consequences for the health of patients. Understanding the risk factors associated with this condition is critical to its prevention, early diagnosis, and proper treatment. Over the past few decades, there has been a significant increase in the incidence and prevalence of pancreatitis worldwide, which has led to increased interest in investigating the underlying risk factors.¹

Pancreatitis can be acute or chronic, and both forms have different clinical and pathophysiological features. Acute pancreatitis is characterized by sudden, self-limited inflammation of the pancreas, while chronic pancreatitis refers to persistent, progressive inflammation that leads to gradual destruction of pancreatic tissue. Both forms of pancreatitis can be triggered by specific risk factors, and identifying these factors is crucial for understanding the disease and implementing preventive strategies.²

Pancreatitis affects a significant proportion of the world's population and its incidence has increased in recent years. Epidemiological studies have revealed differences in the

prevalence and geographical distribution of pancreatitis, with variations in risk factors prevailing in different regions. It is estimated that acute pancreatitis affects approximately 10-45 people per 100,000 inhabitants per year, while chronic pancreatitis has an estimated prevalence of 50-200 cases per 100,000 inhabitants.³

Pancreatitis can have serious health consequences for patients, with significant morbidity and mortality. In addition to severe abdominal pain, acute pancreatitis can lead to serious complications, such as pancreatic necrosis, infection of adjacent tissues, abscesses, sepsis, and multiple organ failure. Chronic pancreatitis can lead to progressive destruction of pancreatic tissue, resulting in loss of exocrine and endocrine function of the pancreas. This can lead to nutrient malabsorption, diabetes mellitus, and nutritional deficiencies.⁴

In this literature review article, we present a synthesis of the updated scientific literature on the risk factors for pancreatitis, their epidemiology, clinical significance, diagnosis, surgical treatment, complications and a discussion on the clinical implications of these findings. Through this comprehensive review, it is hoped to contribute to current knowledge in the field of

pancreatitis and provide a solid foundation for future research and prevention and treatment strategies.

Definition

Pancreatitis is an inflammatory disease of the pancreas that results from premature activation of pancreatic enzymes within the organ. This activation triggers self-digestion of pancreatic tissue, leading to inflammation and tissue damage. Pancreatitis can be classified into 2 main forms: acute pancreatitis and chronic pancreatitis. Acute pancreatitis is characterized by acute and reversible inflammation of the pancreas, while chronic pancreatitis involves chronic, persistent inflammation that leads to irreversible changes in pancreatic tissue.⁵

Acute pancreatitis occurs suddenly and can be associated with a variety of triggers, including gallstones, excessive alcohol consumption, trauma, infections, medications, and genetic disorders. On the other hand, chronic pancreatitis is a progressive condition in which persistent inflammation of the pancreas leads to fibrosis and destruction of normal glandular tissue. This form of pancreatitis is often linked to chronic alcohol use, chronic biliary disease, cystic fibrosis, hypertriglyceridemia, and other metabolic disorders.⁶

Diagnosis

The diagnosis of pancreatitis is based on a combination of clinical, biochemical, and imaging findings. Common symptoms of acute pancreatitis include severe and persistent abdominal pain, nausea, vomiting, fever, and bloating. To confirm the diagnosis, laboratory tests are performed, such as measuring pancreatic enzymes in the blood, such as amylase and lipase. These enzymes are usually elevated in acute pancreatitis.⁷

In addition, imaging techniques are used to evaluate the pancreas and its adjacent structures. Abdominal computed tomography (CT) is a widely used tool for visualizing the pancreas and detecting signs of inflammation, necrosis, or associated complications. Abdominal ultrasound may also be helpful, especially in cases of the mild acute pancreatitis.⁸

In the case of chronic pancreatitis, diagnosis is based on the persistence of symptoms over a prolonged period, along with abnormal laboratory tests and characteristic imaging findings. These findings include changes in the morphology of the pancreas, such as atrophy, calcifications, dilation of the pancreatic ducts, and the presence of pseudocysts.⁹

Surgical treatment

Surgical treatment of pancreatitis is reserved for complicated cases or cases in which adequate control of symptoms has not been achieved with conservative management. Surgical indications include the presence of

infected pancreatic necrosis, pancreatic abscesses, symptomatic pseudocysts, biliary or pancreatic obstruction, and biliary complications such as cholangitis or choledocholithiasis. Surgical procedures can range from debridement and drainage of the necrotic cavity to partial or total resection of the pancreas, depending on the severity of the disease and associated complications.¹⁰

In cases of severe acute pancreatitis with infected necrosis, surgery is performed to clean the necrotic cavity and drain the abscesses. This can be achieved by an open or minimally invasive technique, such as percutaneous necrosectomy guided by computed tomography or laparoscopic surgery.¹⁰

In chronic pancreatitis, surgery is considered in cases of biliary or pancreatic obstruction, intractable abdominal pain, complications related to pseudocysts or abscesses, and in situations where there is a significant loss of exocrine or endocrine function of the pancreas. Surgical procedures may include partial resection of the pancreas (pancreatectomy) or biliary or pancreatic diversion to relieve obstruction and pain.¹⁰

Complications

Pancreatitis can be associated with various complications that can have a significant impact on patients' health. These complications may include:¹¹

Pancreatic necrosis: Severe pancreatitis can lead to necrosis of pancreatic tissue, increasing the risk of infection and abscesses.¹¹

Abscesses: Abscess formation can occur in the pancreas or surrounding tissues due to secondary infection.¹²

Pseudocysts: Pancreatic pseudocysts are collections of fluid surrounded by fibrous tissue and form as a result of tissue necrosis and inflammatory reaction.¹³

Pancreatic hemorrhage: In severe cases of pancreatitis, bleeding may occur in the pancreas or nearby blood vessels, which may require surgical intervention or embolization.¹⁴

Biliary obstruction: Pancreatitis can cause obstruction of the bile ducts, which can lead to jaundice, cholangitis, or choledocholithiasis.¹⁵

Pancreatic insufficiency: Progressive destruction of pancreatic tissue can lead to loss of exocrine and endocrine function of the pancreas. This can result in nutrient malabsorption, diabetes mellitus, and nutritional deficiencies.¹⁶

Organ failure and sepsis: In severe cases, pancreatitis can lead to multiple organ dysfunction and the development of sepsis, a life-threatening condition.¹⁷

DISCUSSION

Pancreatitis is a complex disease that can have multiple risk factors associated with it. Understanding these risk factors is critical for prevention, early diagnosis, and proper management of pancreatitis. In this section, some of the most common risk factors and their clinical significance in relation to pancreatitis will be discussed.²

Biliary etiology

Biliary lithiasis, i.e., the formation of stones in the gallbladder and bile ducts, is one of the main risk factors for pancreatitis. Gallstones can obstruct the common bile duct, leading to the buildup of pancreatic enzymes in the pancreas and the activation of inflammation. It is estimated that approximately 30% of acute pancreatitis cases are related to gallstones. Importantly, biliary pancreatitis can occur even in the absence of gallstones, as biliary stasis and sphincter of oddi dysfunction may also play a role in their development.⁵

Excessive alcohol consumption

Chronic and excessive alcohol consumption is another well-established risk factor for pancreatitis. Alcohol is thought to have direct toxic effects on pancreatic tissue, causing inflammation and cell damage. In addition, alcohol can trigger constriction of the sphincter of Oddi, leading to obstruction of the flow of pancreatic enzymes and the development of pancreatitis. Excessive alcohol consumption has been primarily associated with chronic pancreatitis, but it can also trigger acute episodes of pancreatitis.²

Metabolic factors

Obesity and metabolic disorders, such as diabetes mellitus and hypertriglyceridemia, have been linked to an increased risk of pancreatitis. Obesity can cause changes in the composition and function of adipose tissue, which can lead to chronic inflammation and oxidative stress in the pancreas. In addition, obesity is associated with an increased risk of biliary lithiasis, which in turn can trigger pancreatitis. Diabetes mellitus and hypertriglyceridemia can also negatively affect pancreatic function and increase susceptibility to pancreatitis.²

It is important to note that pancreatitis can be multifactorial, and in many cases, the disease can be the result of the interaction of multiple risk factors. For example, excessive alcohol consumption in individuals with biliary lithiasis can significantly increase the risk of developing pancreatitis.²

CONCLUSION

In conclusion, pancreatitis is a complex disease in which multiple risk factors may play a role in its development. Identifying and understanding these risk factors are

crucial for the prevention, diagnosis, and proper management of pancreatitis. The adoption of preventive measures, such as modification of modifiable risk factors, can play an important role in reducing the burden of disease. In addition, more research is needed to better understand the interaction between risk factors and develop more effective and personalized therapeutic approaches for pancreatitis.

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