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A Mini Review on Pancreatitis and Pancreatic Cancer: Berberine Effect

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Abstract

The pancreas is a gland in the left hypochondriac and upper epigastrium of the abdomen that is extremely sensitive and has the shape of an oblong. It is directly behind the stomach. Pancreatic diseases have long been notoriously difficult to study and comprehend due to their location. In order to perform a thorough examination and make a diagnosis of pancreatic conditions, highly specialized equipment and expertise are frequently required, which is not always the case, particularly in developing nations. Because the pancreas is frequently obscured by abdominal gas or other organs and cannot be fully visualized, routine, cost-effective imaging techniques like trans abdominal ultrasound are not very accurate in diagnosing pancreatic diseases. Additionally, the symptoms of pancreatic diseases are frequently multifactorial, vague, and nonspecific, leading to a poor diagnosis in only 9.7% of cases. The use of more efficient diagnostic methods is costly, invasive, and necessitates access to specialists who are well-versed in pancreatic disease, which further complicates the diagnosis.

Keywords: Pancreatic cancer • Berberine • Intense pancreatitis

Introduction

The pancreas is a main organ carrying out endocrine roles like insulin and glucagon (basic chemicals engaged with guideline of glucose homeostasis) discharge as well as exocrine capabilities, for example, emission of stomach related compounds including amylase and lipase into the duodenum, consequently supporting the processing of almost 25,000 kg of devoured food all through our lifetime. The pancreas is now recognized as an organ that plays a life-sustaining role in the regulation and maintenance of normal physiological processes in various organ systems thanks to the involvement of revolutionary methods in the fields of genetics, molecular biology, and brand-new in vitro and in vivo models of pancreatic diseases. These developments have improved our comprehension of the physiology and pathophysiology of the pancreas, making it possible to gain a deeper comprehension of previously mysterious diseases and opening up brand-new possibilities for the treatment and prevention of those diseases. Specifically, advances in biotechnology have made it possible to successfully 3D bioprint pancreatic islet cells that retained their morphology, function, and viability for up to seven days in culture. Since several islet cell infusions are typically required to achieve significant clinical benefits, increasing the number of transplanted islet cells would help patients achieve insulin independence and dramatically improve patient outcomes [1-4].

Description

Intense pancreatitis (AP) is a quick fiery sickness of the pancreas with various clinical and morphological introductions. AP patients present with beginning of abrupt extreme epigastric agony that frequently emanates to the back, stomach torment that deteriorates subsequent to eating, stomach delicacy, queasiness, regurgitating, fever, and fast heartbeat. If at least two of the following three conditions are met, the revised Atlanta criteria are used to confirm the diagnosis: Pain in the abdomen; levels of lipase or amylase in the serum that are at least three times the upper limit of normal and contrast-enhanced CT, trans abdominal ultrasound or less frequently, radiographic evidence of AP. Side effects are variable and clinical seriousness of AP is ordered into three classifications: moderate, severe, or mild AP has no local or systemic complications, whereas severe AP has persistent organ failure, typically accompanied by infected pancreatic necrosis.

With an annual incidence ranging from 13–45 cases per 100,000 people, AP is the leading cause of gastrointestinal-related hospital admissions in North America. In addition, there has been a 30% increase in the number of hospital admissions for AP in the last ten years. 10–15% of AP cases remain undiagnosed or idiopathic, despite advancements in diagnostics. AP whether mild, moderate, or severe, typically necessitates hospitalization and close monitoring due to the risk of sudden, unanticipated, and sometimes fatal complications. Importantly, it should be emphasized that there are still very few treatment options for AP, and many patients continue to have multiple reoccurrences that prolong inflammation, cause fibrosis or scarring, and permanently damage pancreatic tissues, leading to chronic pancreatitis (CP). There are currently no effective pharmacologic treatments for pancreatitis, despite the fact that every patient who presents with AP is admitted to the hospital. Instead, the majority of treatment consists of supportive therapy, such as intravenous fluid resuscitation to reduce inflammation and prevent dehydration, antiemetics, and pain medication, particularly during the initial attack to identify the specific cause. Gallstones and alcoholism to excess are the two most common causes of AP.

Chronic pancreatitis (CP) is a fibroinflammatory condition characterized by recurrent episodes of pancreatic inflammation of varying intensity and duration that result in permanent loss of function and irreversible damage. Chronic pain, exocrine and endocrine insufficiency, excessive fibrotic tissue buildup, and significantly reduced quality of life and mental health are all consequences of the repeated episodes of tissue inflammation. Imaging alone can be used to diagnose definitive CP, whereas clinical features like pain, nausea, vomiting, and steatorrhea are needed to confirm the diagnosis of suspected or probable CP. Radiographic evidence of parenchymal and intraductal pancreatic fibrosis, calcifications, and endocrine and exocrine insufficiency leading to diabetes, malnutrition, and steatorrhea constitute the definitive CP diagnosis. Patients' quality of life (QOL) may be severely impacted by CP symptoms, and life expectancy is frequently reduced as a result [5-7].

The scientific community has shown a lot of interest in the location where

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premature trypsinogen is activated and the fate of activated trypsin in the early stages of pancreatitis. Both of these issues are crucial. However, there is still no comprehensive comprehension of these phenomena. Pancreatic tissue is not readily available for examination during the early stages of pancreatitis in humans because obtaining pancreatic tissues is invasive and may result in additional complications for the patient, making it extremely difficult to investigate these events in clinical pancreatitis. Berberine (BBR) is a plant-derived polyphenol that can be found naturally in a variety of plants and herbs. Extracts from these plants have historically been used for a wide range of ailments, including ulcers, infections, jaundice, and inflammation, in traditional Chinese medicine and by indigenous peoples of North America. In terms of its chemical structure, BBR a is a quaternary ammonium salt and pentacyclic isoquinoline alkaloid. Because of its numerous non-polar rings, it is very difficult to dissolve in water. The small intestine may not be able to absorb BBR effectively because of its low solubility in water.

Conclusion

The effects of BBR on pancreatitis and pancreatic cancer have been summarized here. However, significant progress has been made to significantly improve bioavailability. In cellular and animal models of pancreatitis and pancreatic cancer, the benefits of BBR are evident. In animal models of pancreatitis, BBR administered intraperitoneally or intragastrically was effective in preventing and reversing damage to pancreatic tissue. The ability of BBR to prevent and reverse pancreatitis may have promising implications for cancer prevention because pancreatitis is a risk factor for malignant transformation that leads to pancreatic cancer.

Acknowledgement

None.

Conflict of Interest

The authors declare that there is no conflict of interest associated with this manuscript.

References

1. Davies, Julian. "Specialized microbial metabolites: Functions and origins." *J Antibiot* 66 (2013): 361-364.
2. Gupta, Pooja D and Tannaz J. Birdi. "Development of botanicals to combat antibiotic resistance." *J Ayurveda Integr Med* 8 (2017): 266-275.
3. Robe, Kevin, Esther Izquierdo, Florence Vignols and Hatem Rouached. "The coumarins: Secondary metabolites playing a primary role in plant nutrition and health." *Trends Plant Sci* 26 (2021): 248-259.
4. Petrovska, Biljana Bauer. "Historical review of medicinal plants' usage." *Pharmacogn Rev* 6 (2012): 1.
5. Álvarez-Martínez, Francisco Javier, Enrique Barrajón-Catalan and Vicente Micol. "Tackling antibiotic resistance with compounds of natural origin: A comprehensive review." *Biomedicines* 8 (2020): 405.
6. Noble, Emily E., Ted M. Hsu, Joanna Liang and Scott E. Kanoski. "Early-life sugar consumption has long-term negative effects on memory function in male rats." *Nutr Neurosci* 22 (2019): 273-283.
7. Noble, Emily E., Christine A. Olson, Elizabeth Davis and Linda Tsan. "Gut microbial taxa elevated by dietary sugar disrupt memory function." *Transl Psychiatry* 11 (2021): 1-16.

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