



Acute Pancreatitis: A Systematic Review

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ABSTRACT :

Acute pancreatitis (AP) is a sudden inflammatory condition of the pancreas that typically presents with intense abdominal pain, nausea, and vomiting. While excessive alcohol use and gallstones are the most common causes, other contributing factors include certain medications, high triglyceride levels, and genetic predispositions. Diagnosis is based on clinical symptoms, elevated pancreatic enzyme levels, and imaging studies like CT or MRI. Treatment is primarily supportive, involving pain management, fluid resuscitation, and nutritional support. In severe cases, procedures such as ERCP or surgery may be required. This review highlights current diagnostic approaches, treatment modalities, and emerging research directions in the management of AP.

Introduction

Acute pancreatitis is an inflammatory response triggered by damage to the pancreatic tissue, often resulting in enzyme leakage and self-digestion of the gland. While diagnosis is relatively straightforward, forecasting disease progression remains a clinical challenge. The condition is broadly categorized into interstitial edematous and necrotizing types. Based on clinical severity, AP ranges from mild (no organ failure) to severe (persistent multi-organ failure).

Anatomy & Physiology of the Pancreas:

Situated behind the stomach in the upper abdomen, the pancreas plays both digestive and hormonal roles. It comprises four sections—head, neck, body, and tail—and functions through exocrine secretions (digestive enzymes) and endocrine hormones (insulin and glucagon).

Etiology

- Common triggers include:
- Gallstones
- Alcohol abuse
- Hypertriglyceridemia
- Certain drugs (e.g., thiazides, azathioprine)
- Trauma
- Infections (e.g., mumps)
- Autoimmune conditions
- ERCP procedure

Epidemiology –The incidence of acute pancreatitis is rising globally, particularly due to lifestyle diseases like metabolic syndrome. Despite increased cases, mortality remains relatively low (around 2%). The condition most frequently affects individuals in their 50s and 60s

Pathophysiology

The pancreas normally releases inactive digestive enzymes, which are activated in the intestines. In AP, these enzymes become prematurely active within the pancreas itself, leading to tissue inflammation, fat necrosis, and cellular damage

Clinical Presentation and Diagnosis

AP typically begins with persistent, radiating abdominal pain, worsened by eating or lying down. Nausea, vomiting, and fever are also common. Diagnosis involves:

- History and physical exam
- Blood tests (amylase/lipase three times above normal)
- Imaging (CT, MRI)

- Assessment of potential causes such as gallstones or alcohol use

Diagnostic Criteria (Revised Atlanta Classification):

A diagnosis requires at least two of the following:

1. Elevated pancreatic enzymes
2. Characteristic abdominal pain
3. Imaging evidence of pancreatic inflammation

Treatment / Management

- Most AP cases resolve with conservative management, including:
- NPO (nothing by mouth)
- IV fluids and electrolytes
- Pain relief (preferably with pethidine)
- Oxygen therapy for hypoxia
- Nutritional support (TPN in severe cases)
- Antibiotics for infection prevention (e.g., imipenem or cefuroxime)
- ERCP if biliary obstruction is present

Surgical Interventions:

- Cholecystectomy: Recommended post-recovery to prevent recurrence
- Necrosectomy: For infected pancreatic necrosis

Differential Diagnosis

Conditions mimicking AP include:

- Peptic ulcers
- Cholecystitis
- Hepatitis
- Myocardial infarction
- Bowel perforation or obstruction
- Renal colic
- Diabetic ketoacidosis

Conclusions

Acute pancreatitis is a serious yet manageable condition that, if unresolved, may lead to chronic complications like diabetes and exocrine insufficiency. While supportive care forms the treatment cornerstone, advances in imaging, pharmacotherapy, and minimally invasive interventions continue to enhance outcomes. Ongoing research is essential to develop targeted therapies and reduce long-term sequelae.

REFERENCES:

1. Werge M, Novovic S, Schmidt PN, Gluud LL. Infection increases mortality in necrotizing pancreatitis: A systematic review and meta-analysis. *Pancreatol.* 2016 Sep-Oct;16(5):698-707. [PubMed]
2. Valverde-López F, Wilcox CM, Redondo-Cerezo E. Evaluation and management of acute pancreatitis in Spain. *Gastroenterol Hepatol.* 2018 Dec;41(10):618-628. [PubMed]
3. Kahaleh M. Management of pancreatitis and pancreatic fluid collections. *Rev Gastroenterol Peru.* 2018 Apr-Jun;38(2):169-182. [PubMed]
4. Bazerbachi F, Haffar S, Hussain MT, Vargas EJ, Watt KD, Murad MH, Chari S, Abu Dayyeh BK. Systematic review of acute pancreatitis associated with interferon- α or pegylated interferon- α : Possible or definitive causation? *Pancreatol.* 2018 Oct;18(7):691-699. [PubMed]
5. Ortiz Morales CM, Girela Baena EL, Olalla Muñoz JR, Parlorio de Andrés E, López Corbalán JA. Radiology of acute pancreatitis today: the Atlanta classification and the current role of imaging in its diagnosis and treatment. *Radiologia (Engl Ed).* 2019 Nov-Dec;61(6):453-466. [PubMed]
6. Talathi SS, Zimmerman R, Young M. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Apr 5, 2023. Anatomy, Abdomen and Pelvis, Pancreas. [PubMed]
7. Fonseca Sepúlveda EV, Guerrero-Lozano R. Acute pancreatitis and recurrent acute pancreatitis: an exploration of clinical and etiologic factors and outcomes. *J Pediatr (Rio J).* 2019 Nov-Dec;95(6):713-719. [PubMed]
8. Barbara M, Tsen A, Rosenkranz L. Acute Pancreatitis in Chronic Dialysis Patients. *Pancreas.* 2018 Sep;47(8):946-951. [PubMed]
9. de Pretis N, Amodio A, Frulloni L. Hypertriglyceridemic pancreatitis: Epidemiology, pathophysiology and clinical management. *United European Gastroenterol J.* 2018 Jun;6(5):649-655. [PMC free article] [PubMed]
10. Kirkegård J, Cronin-Fenton D, Heide-Jørgensen U, Mortensen FV. Acute Pancreatitis and Pancreatic Cancer Risk: A Nationwide Matched-Cohort Study in Denmark. *Gastroenterology.* 2018 May;154(6):1729-1736. [PubMed]