

## An Actualization in Treating Acute Pancreatitis

**Brendy Pamela Nava Martínez<sup>1</sup>, Paloma Montserrat Vega Garibay<sup>2</sup>, Karla Itzel Sánchez Cabrera<sup>3</sup>, Yanali García Ramírez<sup>4</sup>, Julie Rosario Guadalupe Barruquin<sup>5</sup>, María Fernanda Vázquez Páez<sup>6</sup>, Guillermo Dávila Chávez<sup>7</sup>, Andrea Ceret Pérez Pérez<sup>1</sup>, Bernardo Sepúlveda Ferrer<sup>8</sup>**

<sup>1</sup>Universidad Nacional Autónoma de México

<sup>2</sup>Universidad Del Valle de Mexico

<sup>3</sup>Instituto Politécnico Nacional

<sup>4</sup>Universidad Autónoma Benito Juárez de Oaxaca

<sup>5</sup>Universidad de Guadalajara

<sup>6</sup>Benemérita Universidad Autónoma de Puebla

<sup>7</sup>Universidad del Valle de México

<sup>8</sup>Universidad de Monterrey

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### ABSTRACT

This overview delves into the comprehensive management of acute pancreatitis, covering procedures like percutaneous catheter drainage, necrosectomy, endoscopic retrograde cholangiopancreatography (ERCP), and ultrasonography-guided endoscopic cyst gastrostomy. Tailoring interventions to specific patient needs is emphasized, with considerations for special populations such as pregnant individuals and children. The conclusion underscores the importance of judicious procedure selection and ongoing monitoring for optimal outcomes.

**KEYWORDS:** Acute pancreatitis; interventional procedures; special populations

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### ARTICLE DETAILS

**Published On:**  
**07 December 2023**

**Available on:**  
<https://ijmscr.org/>

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### INTRODUCTION

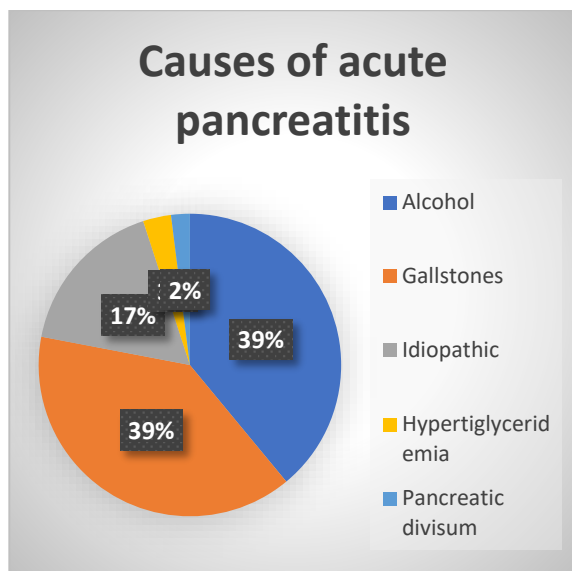
Acute pancreatitis is characterized by the abrupt inflammation of the pancreatic parenchyma, ranging from mild to severe. This condition poses the risk of local damage, systemic inflammatory response syndrome, and organ failure. Patients typically exhibit sudden, persistent epigastric or left upper quadrant pain, accompanied by nausea, vomiting, and fever. Diagnosis entails meeting two of three criteria: characteristic abdominal pain, elevated amylase or lipase levels, and radiologic evidence on abdominal imaging. Identifying the cause is pivotal for tailored treatment, with common triggers being cholelithiasis or alcohol use disorder<sup>1-3</sup>.

Upon admission, a prognostic assessment guides initial treatment, considering factors like systemic inflammatory response syndrome, hypovolemia, and imaging-detected complications. Treatment strategies encompass early fluid resuscitation, pain management, and nutritional support. Biliary pancreatitis necessitates biliary tract interventions, such as endoscopic retrograde cholangiopancreatography, sphincterotomy, or cholecystectomy. Infected necrotizing

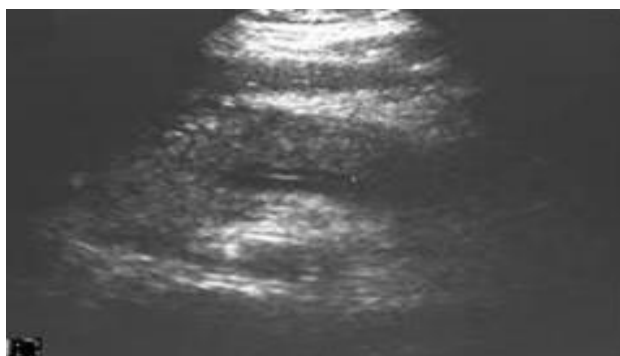
pancreatitis may demand antibiotics, percutaneous drainage, or necrosectomy. Complications range from exocrine insufficiency to vascular complications, emphasizing the need for vigilant care<sup>4,5</sup>.

Acute pancreatitis carries a 5% mortality rate, with organ failure being a key determinant of morbidity and mortality. Recurrence is common but preventable by addressing the underlying cause. Vigilance is crucial in the emergency setting to avoid overlooking complications like hypoxemia and inadequate fluid resuscitation<sup>6</sup>.

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Traps in the emergency department include patients appearing comfortable after pain relief, potentially masking issues like hypoxemia. Accurate diagnosis is paramount to differentiate pancreatitis from other life-threatening conditions, such as a perforated viscus, ischemic bowel, bowel obstruction, or myocardial infarction <sup>7</sup>.



**Figure 1. Ultrasonography of acute pancreatitis, showing a bulky hypoechoic organ.**

### Goals of acute pancreatitis management

Efficiently deliver fluid resuscitation, pain relief, and nutritional support. Identify and address the underlying cause of pancreatitis, manage local complications when present, and strive to prevent recurrence <sup>8</sup>.

### Patient disposition

**Admission Criteria:** Nearly all acute pancreatitis patients should be admitted to a general hospital ward. Specific criteria for discharging patients predicting mild acute pancreatitis may include the absence of peritoneal signs, normal serum creatinine and hematocrit levels, and a Harmless Acute Pancreatitis Score indicating clinical severity <sup>9</sup>.

**ICU Admission Criteria:** Patients demonstrating signs of systemic inflammatory response syndrome, organ failure, elevated clinical risk scores (e.g., BISAP or APACHE II scores), or unresponsiveness to early fluid resuscitation

should be admitted to the ICU or intermediate ICU care setting <sup>10</sup>.

### Treatment options for acute pancreatitis

Acute pancreatitis, characterized by sudden pancreatic inflammation, necessitates a multifaceted treatment approach. Supportive care forms the cornerstone, encompassing pain relief, fluid resuscitation, nutritional support, and systemic inflammatory response management <sup>1-3</sup>.

Fluid resuscitation plays a pivotal role, with early initiation based on hemodynamic status and continuous reassessment to prevent complications. Pain management involves a multimodal analgesic regimen, incorporating opioids, NSAIDs, and acetaminophen. Patient-controlled analgesia and epidural analgesia are viable options <sup>9</sup>.

Nutritional support strategies vary, advocating early oral feeding within 24 hours for mild cases. Severe cases favor enteral nutrition, commencing within 72 hours, while parenteral nutrition serves as a secondary choice if enteral intake is challenging <sup>9</sup>.

Complication management targets specific causes like cholelithiasis or alcohol use disorder. Prophylactic antibiotics find no recommendation, reserved for confirmed infected necrosis. Local complications, such as fluid collections and necrotic fluid accumulation, necessitate a multidisciplinary approach <sup>11</sup>.

Innovative approaches involve low-molecular-weight heparin for potential benefits in severe cases. Nondrug interventions and supportive care are integral components <sup>12</sup>.

Fluid resuscitation adheres to guidelines favoring lactated Ringer solution for potential advantages. Individualizing fluid therapy considers patient-specific factors to mitigate complications, with regular monitoring based on clinical and biochemical targets <sup>9</sup>.

Nutritional support recommendations emphasize early oral nutrition for mild cases and prefer enteral nutrition via nasogastric or nasojejunal routes for severe cases. Parenteral nutrition serves as a secondary option when enteral feeding faces challenges <sup>9</sup>.

### Procedures for managing acute pancreatitis

#### Percutaneous Catheter Drainage:

One method involves the insertion of a large drainage catheter, guided by CT or ultrasonography, into liquid necrotic areas. This catheter is connected to a gravity drainage system, and saline irrigation is performed daily. This procedure is effective for managing fluid collections complicating necrotizing acute pancreatitis, allowing tailored antibiotic therapy through sampled aspirated fluid <sup>13</sup>.

#### Necrosectomy:

Another procedure involves the surgical removal of necrotic pancreatic tissue. This can be accomplished endoscopically, laparoscopically, or through open surgery. The optimal timing for this intervention is approximately four weeks post-onset when the necrosis transforms into a more amenable liquefied

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state. This procedure is indicated for cases of infected necrotizing pancreatitis<sup>14</sup>.

Endoscopic Retrograde Cholangiopancreatography (ERCP): ERCP is a diagnostic and therapeutic approach that uses an endoscope to administer contrast into bile ducts and the pancreas. This facilitates the location and removal of obstructing biliary calculus. ERCP is beneficial for severe acute biliary pancreatitis with cholangitis and retained common bile duct stones<sup>15</sup>.

### Ultrasonography-Guided Endoscopic Cyst Gastrostomy

This drainage technique utilizes an endoscope with an ultrasonographic probe to guide the placement of a drainage catheter into the pseudocyst. This relieves fluid collection and is appropriate for managing symptomatic pancreatic pseudocysts<sup>16</sup>.

Moreover, certain populations require special considerations in the management of acute pancreatitis.

### Special populations

Pregnant Patients: The approach for pregnant individuals with acute pancreatitis, often caused by cholelithiasis, closely mirrors that of nonpregnant patients. It involves careful fetal monitoring and consideration of laparoscopic cholecystectomy in the second or third trimester<sup>17</sup>.

Children: Considerations for pediatric cases include fluid resuscitation, meticulous monitoring of cardiac, respiratory, and renal status, early enteral nutrition for mild cases, and selective use of endoscopic ultrasonography<sup>18</sup>.

## CONCLUSION

In conclusion, the management of acute pancreatitis involves a spectrum of procedures tailored to the specific needs of patients. Percutaneous catheter drainage, necrosectomy, endoscopic retrograde cholangiopancreatography (ERCP), and ultrasonography-guided endoscopic cyst gastrostomy are crucial interventions for addressing complications and improving outcomes. Special populations, such as pregnant individuals and children, necessitate unique considerations in their treatment plans. The careful selection of procedures and ongoing monitoring are essential elements in the comprehensive management of acute pancreatitis. By employing these procedures judiciously and adapting strategies to diverse patient populations, healthcare providers can enhance the effectiveness of interventions and contribute to the overall well-being of individuals experiencing acute pancreatitis.

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