



## To Treat or Not To Treat: Acute Pancreatitis

Acute pancreatitis is inflammation of the pancreas, most commonly caused by gallstones (40%), prolonged alcohol use (30%), and hypertriglyceridemia (2-5%). Acute pancreatitis can range in severity from mild interstitial pancreatitis to severe, necrotizing pancreatitis.<sup>1</sup> Unfortunately, up to 30% of patients with necrotizing pancreatitis will develop infected pancreatic necrosis.<sup>1</sup> Additionally, patients with acute pancreatitis can present with a significant non-infectious systemic inflammatory response. When should antibiotics be started in patients with acute pancreatitis?

### Should antibiotics be used to prevent infection in acute pancreatitis?

Clinical trials have shown no benefit of prophylactic antibiotics in acute pancreatitis. A randomized trial compared ciprofloxacin and metronidazole to placebo in patients with severe acute pancreatitis. No significant difference was found in the development of infected pancreatic necrosis between the two groups (12% vs 9%, respectively;  $p=0.585$ ).<sup>2</sup> Another randomized trial comparing meropenem to placebo in patients with severe acute pancreatitis found no difference as well. 18% of patients receiving meropenem developed a pancreatic infection versus 12% in the placebo group ( $p=0.401$ ).<sup>3</sup> Multiple guidelines recommend against antibiotics to prevent infection in pancreatitis.<sup>4-7</sup>

### When should antibiotics be used in acute pancreatitis?

Antibiotics should be administered in confirmed or suspected infected pancreatic necrosis. Infection can be confirmed microbiologically with positive cultures from blood or CT-guided biopsy of necrotic tissue. Presence of gas on imaging and clinical findings such as new fevers, worsening leukocytosis, or clinical deterioration can suggest infection. Unfortunately, clinical findings suggesting infected pancreatic necrosis are non-specific and can overlap with non-infectious causes (e.g. inflammatory state from pancreatitis alone).<sup>2</sup>

### Can procalcitonin be used to guide antibiotic use in acute pancreatitis?

The PROCAP<sup>8</sup> study was a randomized controlled trial to compare usual care to a procalcitonin-guided algorithm utilizing a serum procalcitonin threshold of  $\geq 1$  ng/mL to start or continue antibiotics and  $< 1$  ng/mL to withhold or discontinue antibiotics in patients with acute pancreatitis. The authors concluded that using procalcitonin reduced the amount and frequency of antibiotics prescribed with no negative impact on clinical outcomes such as length of stay, infections per patient, and mortality.

**Key Take Away:** Antibiotics should be reserved for patients with confirmed or suspected infected pancreatic necrosis. Prophylactic antibiotics in acute pancreatitis are not indicated.

### Resources

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7. Tenner S, Vege SS, Sheth SG, et al. American College of Gastroenterology Guidelines: Management of Acute Pancreatitis. *Am J Gastroenterol* 119(3):p 419-437, March 2024.
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