

ANTIBIOTIC PROPHYLAXIS IN SEVERE ACUTE PANCREATITIS GUIDELINE

Background

A number of small clinical studies focusing on antimicrobial prophylaxis for severe acute pancreatitis have been conducted with conflicting results. Due to more recent double-blinded randomized controlled studies and meta-analyses, current guidelines have recommended against routine antibiotic prophylaxis.^{1,2}

A 2012 meta-analysis noted that before 2000 four randomized controlled trials (183 patients) showed a significant mortality reduction in patients who received antibiotic prophylaxis in severe acute pancreatitis (RR = 0.31, 95% CI: 0.12-0.79, P = 0.01). The number needed to treat (NNT) was eight patients for one patient to achieve mortality benefit. However since 2000, seven randomized controlled trials (439 patients) demonstrated no mortality benefit in the prophylactic antibiotics group (RR = 1.01, 95% CI: 0.65-1.56, P = 0.98). The NNT was 1429 for one patient to benefit from antibiotic prophylaxis.²

In 2004, a prospective multi-centered placebo-controlled double-blinded study³ of 114 patients with severe acute pancreatitis (defined as elevated C-reactive protein and/or presence of pancreatic necrosis on CT scan with abdominal pain and elevated serum amylase or lipase levels) was initially conducted to demonstrate the benefit of antibiotic prophylaxis in preventing infected pancreatic necrosis (IPN) but later reported it had no advantage. Patients with severe acute pancreatitis were randomized to placebo or ciprofloxacin and metronidazole. Pancreatic necrosis were confirmed in 76 patients with 24 patients having >30% necrotic involvement. Among the severe acute pancreatitis patients, IPN developed in 12% of patients in the antibiotic arm and 9% in the placebo arm (P = 0.585). Surgical intervention was required in 17% and 11% of the antibiotic and placebo groups, respectively. Mortality rate was 5% in the antibiotic arm and 7% in the placebo arm. In 76 patients with confirmed necrotizing pancreatitis, no differences in rate of IPN, systemic complications, or mortality were observed.

A 2007 prospective multi-centered placebo-controlled double-blinded study⁴ of 100 patients with clinically severe, confirmed necrotizing pancreatitis also reported no statistically significant benefit in using antibiotics for prophylaxis. Study patients were randomized to placebo or meropenem within 120 hours of onset of symptoms. Among the confirmed necrotizing pancreatitis patients, 52% of the patients in the antibiotic arm and 62% in the placebo arm had >30% necrotic involvement. Rate of pancreatic or peripancreatic infections was observed in 18% of patients in the antibiotic group and 12% in the placebo group (P=0.401). Surgical intervention was required in 26% and 20% of the meropenem and placebo arms, respectively (P = 0.476). Overall mortality was 20% in the meropenem arm and 18% in the placebo arm (P = 0.799).

Since these two studies have been conducted, eight meta-analyses came forth to interpret the available literature. Only one meta-analysis demonstrated a significant reduction of pancreatic or peripancreatic infection and the length of hospital stay. All other meta-analyses demonstrated no benefit in mortality or reduction in pancreatic infection.

As a result, according to the updated June 2013 American College of Gastroenterology guidelines⁵ and 2010 IDSA/Surgical Infection Society guidelines⁶, routine antibiotic prophylaxis is not recommended in severe necrotizing pancreatitis.

Recommendation

Routine antibiotic prophylaxis for severe necrotizing pancreatitis is not recommended. Antibiotics are not indicated until culture results from pancreatic aspirate are positive.

References:

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