FPIN's Help Desk Answers

Antibiotic Prophylaxis for Severe Acute Pancreatitis

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Clinical Question

Does antibiotic prophylaxis decrease mortality in hospitalized patients with severe acute pancreatitis?

Evidence-Based Answer

No, antibiotic prophylaxis does not decrease mortality in patients with severe acute pancreatitis, defined as pancreatitis associated with pancreatic necrosis. (Strength of Recommendation: A, based on meta-analyses of randomized controlled trials [RCTs] and a single RCT.)

Evidence Summary

A 2010 meta-analysis of seven RCTs (N = 404) evaluated the effect of antibiotic therapy vs. no antibiotics or placebo on rates of mortality and infected pancreatic necrosis in patients with computed tomography–confirmed severe acute pancreatitis.[1] The mean age of participants ranged from 43 to 50 years, and most patients had pancreatitis secondary to alcohol use (50%) or biliary disease (24%). Antibiotics included β-lactams, quinolones plus imidazole, or imipenem/cilastatin (Primaxin IV), and were given for 14 to 21 days. Infected pancreatic necrosis was confirmed by culture of aspirate. Overall, antibiotic prophylaxis did not decrease mortality compared with placebo (relative risk [RR] = 0.60; 95% confidence interval [CI], 0.34 to 1.1). Imipenem/cilastatin did decrease rates of infected pancreatic necrosis (two studies; N = 160; RR = 0.34; 95% CI, 0.13 to 0.84), but β-lactams and quinolones plus imidazole did not. None of the studies was adequately powered, only two were double-blinded, and only four had appropriate allocation concealment.

Another meta-analysis included the seven RCTs from the 2010 meta-analysis plus an additional single-blind RCT (n = 35) of ciprofloxacin plus metronidazole (Flagyl), meropenem (Merrem IV), or placebo.[2] This meta-analysis also showed no mortality benefit from antibiotic prophylaxis (N = 439; RR = 0.76; 95% CI, 0.49 to 1.2).

A 1996 double-blind RCT (n = 23) evaluated mortality in patients with severe acute pancreatitis secondary to alcohol use.[3] Patients were randomized to a 10-day course of ceftazidime (Fortaz), 2 g every eight hours; amikacin, 7.5 mg per kg every 12 hours; or metronidazole, 500 mg every eight hours; or placebo. Patients were 21 to 71 years of age with pancreatic fluid collections noted on computed tomography. Three patients in the placebo group and one patient in the antibiotic group died (reported as not statistically significant, but no *P* value was given).

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References

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Author disclosure: No relevant financial affiliations.