Diabetic Foot Infections and Empiric *Pseudomonas aeruginosa* Activity

Patients with diabetic foot infections (DFI) often receive empiric anti-pseudomonal antibiotics (e.g. cefepime, piperacillin/tazobactam, meropenem), despite few patients having DFI due to *Pseudomonas aeruginosa*.[1] Anti-pseudomonal antibiotics are among the broadest antibiotics and each additional day of anti-pseudomonal beta-lactams increases the risk for the emergence of drug resistance.[2] If empiric antibiotics are indicated, when should anti-pseudomonal coverage be used in patients with a DFI?

What do guidelines recommend?

In patients where empiric antibiotics are used, the 2023 IDSA/IWGDF DFI guideline recommend **AGAINST** empiric *P. aeruginosa* coverage unless the patient has a recent culture in the last few weeks with *P. aeruginosa* or resides in North Africa or Asia with a moderate to severe infection.[3]

This recommendation is an updated from the 2012 IDSA guidelines where antipseudomonal therapy was also advisable for patients who have been soaking their feet, failed therapy lacking anti-pseudomonal activity, or who have a severe infection.[4] The new 2023 guideline recommendations will likely result in improved antimicrobial stewardship with less frequent coverage of *P. aeruginosa*.

How often does *P. aeruginosa* cause DFI in the United States?

A multicenter retrospective cohort of 292 adult hospitalized patients with DFI (excluding osteomyelitis) found that only 27 (9%) grew *P. aeruginosa* from culture.[1]

In a randomized controlled trial comparing ertapenem to piperacillin-tazobactam for the treatment of DFI conducted in 89 sites in the United States, *P. aeruginosa* was isolated in only 28 of 402 (7%) patients. Interestingly, in patients with *P. aeruginosa* identified from culture, favorable clinical response was similar between patients who received ertapenem (which lacks activity against *P. aeruginosa*) (83.3%) and piperacillin-tazobactam (70%).[5]

Key Takeaway: In patients with DFI who require empiric antibiotics, activity against *P. aeruginosa* is not needed unless isolated from a recent culture or if living in North Africa or Asia.

References:

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