Kentucky Antimicrobial Stewardship Innovation Consortium

Educational Pearl

Enterococcal Coverage in Diabetic Foot Infections

Diabetic foot infections (DFIs) are complicated infections that can range in severity and are often polymicrobial. *Enterococcus* spp are regarded as lower virulence organisms, and thus some providers may not feel compelled to modify antibiotic regimens to include anti-enterococcal activity, even if isolated on tissue cultures. Is it ok to ignore *Enterococcus* spp when they are isolated from cultures in diabetic foot infections?

What do the guidelines say?

In the 2004 Infectious Diseases Society of America (IDSA) guideline on DFIs, the following recommendation is made[1]:

> *"It is not always necessary to cover all microorganisms isolated from cultures. More virulent species (e.g., S. aureus and group A or B streptococci) should always be covered, but in a polymicrobial infection, less-virulent bacteria (e.g., coagulase-negative staphylococci and enterococci) may be less important (B-II). If the infection has not responded to the empirical regimen, select agents with activity against all isolates."*

In the latest 2023 guideline from the IDSA and International Working Group on the Diabetic Foot, no specific recommendations regarding *Enterococcus* spp are made.[2]

What is the evidence?

Antibiotic regimens without anti-enterococcal activity have demonstrated clinical and microbiological success in soft tissue infections where *Enterococcus* spp. was identified in culture. However, the available data has limitations. One report contained a small sample size and did not compare outcomes with patients who did receive anti-enterococcal therapy.[3] A double-blind, randomized controlled trial compared ertapenem to piperacillin-tazobactam for DFIs (excluding osteomyelitis) and included 64 isolates of *Enterococcus* spp.[4] Similar clinical response rates were noted in patients with *Enterococcus* spp in culture (86.8% vs 80.8%, respectively). However, patients could have also received vancomycin empirically and most patients were de-escalated to amoxicillin-clavulanate, which limits interpretation of findings. A retrospective cohort study evaluated outcomes in patients with DFI (~50% with osteomyelitis) due to *Enterococcus* spp (alone or with other bacteria) who received anti-enterococcal therapy vs those who did not.[5] Rates were similar in a composite outcome of amputations and/or in-hospital death. Additionally, rates were similar in minor amputation rates and 1-year mortality rates. The authors noted that there was a trend in reduced major amputations in the anti-enterococcal therapy group, but this was not statistically significant (20.4% vs 34.1%, p=0.06).

Key Takeaway: Older guidelines have suggested that *Enterococcus* spp can be ignored in polymicrobial cultures, however, newer guidelines do not specifically address. The overall data to answer this clinical question is poor. Although success has been demonstrated with regimens excluding *Enterococcus* spp activity, it is unclear whether this practice results in comparable outcomes when activity is included.

References:

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