



Hospital: Cascade Valley

Presenter: Robert Cockrell

Question/case summary:

Patient with diabetic foot and associated osteomyelitis, with multiple infections in the last 12 months, all polymicrobial with MSSA.

Initially patient was placed on zosyn/vancomycin. Culture of heel ulcer eventually grew 6 spp including *Proteus vulgaris*, MSSA, *Proteus mirabilis*, *Alcaligenes faecalis*, methicillin resistant *Staphylococcus coagulase negative*, and Group D *Enterococcus* as well as *Strep viridans*, mixed anaerobes, and diphtheroids. Provider then consulted with Pharmacy requesting a single, once a day antibiotic to cover everything to keep the regimen as simple as possible. Consideration was given to delafloxacin even though it's twice daily as it technically has activity against all the bacteria. We had heard from an ID MD from another system that used it orally for osteomyelitis with success. The sister hospital ID MD reviewed the patient and made no recommendations to change therapy, but did state he recommended not to use ORAL delafloxacin since it was osteomyelitis. We would be interested any additional opinions regarding treatment options or strategies for this patient.

UW TASP Recommendations:

Not all diabetic foot ulcers are infected, and not all infected ulcers affect the bone. TASP team would consider an antibiotic treatment course like moxifloxacin or levofloxacin + doxycycline or TMP/SMX minding that antibiotics do not treat the full problem. Debridement, re-vascularization, good wound care, and improved management of blood glucose are essential for treatment and prevention of future episodes.

Patient education and social assistance is KEY: If the patient doesn't believe in insulin, do they believe in antibiotics?

General approach to treatment

- 1.) Good wound care
- 2.) Off-load weight on foot (i.e. rest, elevate foot)
- 3.) Tissue debridement +/- short course of antibiotic therapy
- 4.) Local infection without systemic inflammatory response syndrome – debride & obtain cultures (EVEN if it is osteomyelitis)
- 5.) Systemic signs and symptoms of infection: treat immediately with antibiotics, debride and send culture, but don't delay antibiotic therapy

A note on microbiology culture:

Superficial cultures, like wound swabs, generally do not provide clinically useful data to guide treatment. As much as possible, measures should be taken to obtain deep cultures, like those obtained during debridement.

Infected diabetic foot infection cultures are very often polymicrobial in nature and it can be very difficult to pick-out all of the various organisms. Additionally, these cultures may not capture all organisms either. The lab will not be able to distinguish which pathogens are most likely causing disease and so these infections should be considered polymicrobial and treated as such. We do use cultures (especially from the bone) to help guide coverage for pathogenic organisms – like Staph aureus and Pseudomonas, and occasionally other resistant organisms.

Can we use delafloxacin:

It may be an option, but it is not ideal because of

(a) cost/lack of insurance coverage

(b) lack of clinical data/experience for bone infections

- high protein binding vs. the other FQ may result in different bone exposure vs. other FQ
- Possible concerns about bioavailability which is not 100% like levo/cipro/moxi
- Clinical trials for skin and soft tissue infections excluded patients with bone involvement
- *In vitro* advantages, like stability in low pH like that found in necrotic tissue and/or abscesses have not born out clinically – i.e. no difference in outcomes vs. comparator agents that are not as stable at low pH

Side note: If your institution or providers are using delafloxacin for osteomyelitis, this would be a good opportunity to write-up that experience and submit to a medical journal for the rest of us to learn

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