Kentucky Antimicrobial Stewardship Innovation Consortium

Educational Pearl

Don't Shrug At Lug: Spotting *Staphylococcus lugdunensis*

Staphylococcus lugdunensis is a coagulase-negative Staphylococcus (CoNS) that has historically been misidentified as *Staphylococcus aureus* or classified as a nonspecific CoNS prior to the adoption of mass-spectrometry microbiological identification.[1] Although it is a ConS, *S. lugdunensis* differs in its virulence. How should a clinician approach a clinical culture with *S. lugdunensis*?

Where does *Staphylococcus lugdunensis* typically reside?
S. lugdunensis is a colonizing skin flora found in 30-50% of individuals.[2] It most frequently colonizes the lower parts of the body, such as inguinal folds, perineal sites, or lower extremities.[3]

Why is *Staphylococcus lugdunensis* different from other coagulase-negative *Staphylococci*?
Unlike other CoNS, *S. lugdunensis* produces virulence factors, including toxin-like peptides and proteins that bind host coagulation factors. Due to increased adhesion capabilities, this organism is associated with endocarditis, implanted cardiac electrical device infections, skin/soft tissue infections, bone/joint infections, and vascular catheter-related infections.[4] In a study comparing 30-day mortality among patients with both native and prosthetic valve endocarditis, patients with *S. lugdunensis* endocarditis had a higher rate of mortality than those with other CoNS endocarditis (20% vs. 7%; p=0.016).[5]

Which antimicrobials should be used on this organism?
Treatment options for infections due to *S. lugdunensis* are similar to those of *S. aureus.* However, rates of methicillin resistance in *S. lugdunensis* are typically lower than *S. aureus* and other CoNS. Methicillin resistance in *S. lugdunensis* due to *mecA* gene variants (SCC*mec* types I, IV, and V) has been found to be between 3-8%.[6,7] Anti-staphylococcal agents such as cefazolin, vancomycin, and daptomycin can be used for *S. lugdunensis* infections.[8]

Key Takeaway: *Staphylococcus lugdunensis* is more virulent than other coagulase-negative *Staphylococcus* species, and should be clinically managed like *S. aureus*.

References:

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