AST T3 Webinar "Invasive Fungal Diseases: Emerging Diagnostics and New Therapies"

Additional Q&A

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Q: Can you clarify how beta-D-glucan has a good negative predictive value but a low sensitivity? in other words, is it helpful if neg? Or do you need more than one sample to ascertain? Similarly, with galactomannan. I see that you are using one positive test result to treat, so highly specific, but not sensitive.

A: In 2017, galactomannan testing has a high specificity as we no longer have issues with contamination in patients receiving piperacillin-tazobactam. So, a positive test (EIA index >0.5) should be taking seriously in a patient with a compatible syndrome. For beta-D-glucan it tends to be a more sensitive test than galactomannan (we have a segment of patients that are glucan-positive and galactomannan-negative with invasive aspergillosis for example), but the test by itself is not specific not in the statistical sense per se, but as it becomes positive in diverse fungal diseases (pneumocystosis, systemic candidiasis, aspergillosis, etc.), the test interpretation needs to be done in context of the clinical scenario, presentation.

Q: I was wondering if there are specific beta glucan level cut-offs we can use to help us narrow our differential for fungal infections? And how high do false positive levels get?

A: Not really. The level of b-glucan depends on the type of fungal disease and the time from onset of disease to testing. It tends to be very high in PCP consistently, but I have seen levels in the range of quantitation for diverse fungal diseases. Patients who receive IVIG or albumin in the US consistently have levels >500 pg/mL if someone sends a glucan in the days after administration of those treatments, so consistently false positive and very high levels. It takes 1-2 weeks to clear the signal in this setting in my experience.