2007. Impact of Combining Rapid Diagnostics with an Interpretation Guide on Vancomycin Usage for Contaminant Blood Cultures Growing Coagulase-Negative Staphylococci (CoNS)

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Session: 235. Antibiotic Stewardship: Diagnostics and Diagnostic Stewardship
Saturday, October 5, 2019: 12:15 PM

Background. Contaminant blood cultures can lead to unnecessary antibiotic use, longer admissions and increased costs. Rapid diagnostics, like the BioFire® FilmArray® Blood Culture Identification (BCID) Panel, can potentially lessen these harms. BioFire BCID was implemented at VA Greater Los Angeles in 7/2017. When providers review BCID results, they are also directed to an interpretation guide developed by our antimicrobial stewardship program. This study aimed to determine the impact of BioFire BCID with this interpretation guide on unnecessary vancomycin use for contaminant blood cultures growing CoNS.

Methods. This was a retrospective cohort study on adult inpatients with contaminant blood cultures positive for CoNS. We evaluated cases before BCID (April 2016–July 2017) and after BCID (July 7/2017–December 2018) implementation. Cases with patients who died or were discharged prior to preliminary results, polymicrobial cultures, no empiric vancomycin use, or where vancomycin was indicated were excluded. We defined a "case" as anytime a provider concurrently ordered blood cultures and empiric antibiotics. Our primary outcome was the duration of unnecessary vancomycin. Secondary outcomes were time to discontinuation/modification of any empiric antibiotic, length of stay (LOS), LOS in ICU and 30-day mortality.

Results. A total of 99 cases were included (N = 45 pre-BCID; N = 54 post-BCID). Demographics between the 2 groups were largely similar except the post-BCID group had more patients with end-stage renal disease (ESRD) (14 vs. 4, P = 0.037) and more frequent infectious disease (ID) consultation (21 vs. 8, P = 0.027). The post-BCID group had shorter mean duration of unnecessary vancomycin (53.0 hours vs. 38.1 hours, P = 0.0029). After controlling for ESRD and ID involvement, the mean duration of unnecessary vancomycin was not significantly different between the 2 groups (P = 0.30 and P = 0.49, respectively). There was no difference in time to modification/discontinuation of any empiric antibiotic (44.6 hr vs. 35.0 hr, P = 0.36). There was no difference in mean LOS, mean LOS in ICU, or 30-day mortality.

Conclusion. Shorter duration of unnecessary vancomycin for CoNS bacteremia after BCID implementation and provision of an interpretation guide may have been driven in part by more frequent ID consultation.

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2008. Outcomes of Patients with Positive Procalcitonin Levels Who Do Not Receive Continued Antibiotics

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Session: 235. Antibiotic Stewardship: Diagnostics and Diagnostic Stewardship
Saturday, October 5, 2019: 12:15 PM

Background. Procalcitonin (PCT) is a biomarker used to direct continued use of antibiotic therapy in patients with sepsis and community-acquired pneumonia. There is a lack of data on outcomes of patients with a positive PCT who do not receive continued antibiotics. We compared outcomes in patients with positive PCT levels who received antibiotics <24 hours to those who received ≥ 24 hours.

Methods. A single-center, retrospective study to compare outcomes of adult patients with positive PCT (>0.25 µg/L) levels based on antibiotic duration. A report of hospitalized patients from January to June 2018 was generated and screened for inclusion criteria. Data collection included demographics, microbiologic data, Charlson Weighted Index of Comorbidity (CWIC), ICU admission, length-of-stay (LOS), and in-hospital mortality. Continuous and categorical variables were analyzed using Student's t-test and Chi-square, respectively.

Results. 443 of 998 patients met the inclusion criteria. 113 patients (25.5%) received <24 hours of antibiotics (Group 1) and 330 patients (74.5%) received ≥ 24 hours (Group 2). Group 1 had a higher CWIC, lower mean PCT and were less likely to have positive cultures (see table). Mean LOS was significantly different between the groups. ICU admission and mortality were not found to be different between the groups. While Group 1 had higher rates of noninfectious causes of mortality and Group 2 had higher rates of infectious, the differences were not significant. Among patients who died in-hospital, 47.6% vs. 63.2% had acute or chronic renal failure in Group 1 vs. Group 2, respectively.

Conclusion. Patients with elevated PCT levels are a heterogenous group. There was no overall difference in mortality between the two groups indicating that the interpretation of positive PCT results was overall appropriate in this study. Clinicians need to consider noninfectious causes of elevated PCT when evaluating patients.

	Group 1 (n = 113)	Group 2 (n = 330)	p-value
Mean Age ± SD	64.2 ± 15.0	65.4 ± 16.9	0.503
Males, n (%)	63 (55.8)	166 (50.3)	0.373
Mean CWIC ± SD	3.0 ± 2.6	2.4 ± 2.3	**0.021**
Mean PCT ± SD	2.8 ± 12.8	11.7 ± 35.6	**0.004**
Positive Cultures, n (%)	14 (12.4)	132 (40.0)	**0.0001**
Blood	5 (35.7)	53 (40.2)	**0.003**
Urine	6 (42.9)	40 (30.3)	0.062
Sputum	1 (7.1)	19 (14.4)	0.059
Sterile site	0 (0)	6 (4.5)	0.331
Other sites	2 (14.3)	14 (10.6)	0.356
ICU Admission, n (%)	33 (29.2)	126 (37.9)	0.109
Mean LOS (days) ± SD	5.8 ± 6.0	8.9 ± 7.4	**<0.001**
In-Hospital Mortality, n (%)	21 (18.6)	38 (11.5)	0.080
Cause of Death			
Non-infectious	17 (81.0)	20 (52.6)	0.061
Infectious	4 (19.0)	18 (47.4)	0.061

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2009. Evaluation of Time to Organism Identification and Pharmacist Impact on Antibiotic Prescribing through Utilization of MALDI-TOF at Two Community, Teaching Hospitals

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Session: 235. Antibiotic Stewardship: Diagnostics and Diagnostic Stewardship
Saturday, October 5, 2019: 12:15 PM

Background. In patients with bacteremia, delay in appropriate therapy is associated with higher morbidity and mortality. Matrix-assisted laser desorption/ionization time-of-flight (MALDI-TOF) reduces the time to identification (ID) to approximately 30 minutes. Previously published studies show rapid diagnostics need to be coupled with antibiotic stewardship intervention for maximal benefit.

Methods. Retrospective, observational review at Cambridge and Everett Hospitals, two inpatient community, teaching hospitals that are part of Cambridge Health Alliance. The purpose is to evaluate the impact of MALDI-TOF by reviewing data in three phases: Microscan ID (January 1 to November 30, 2017), MALDI-TOF alone (December 1, 2017 to December 9, 2018), and MALDI-TOF coupled antimicrobial stewardship (December 10, 2018 to April 30, 2019). The laboratory batches all positive blood cultures to be run via MALDI-TOF mid-morning. In phase 3, a pharmacy resident is notified of the result via an automatic page. The resident determines appropriate empiric therapy using an algorithm developed by the Antimicrobial Stewardship Team and contacts the primary team. Data were collected via a laboratory report and chart review. The primary outcome is time to targeted antimicrobial therapy after ID. Secondary outcomes include time to ID, time to susceptibilities, duration of therapy for blood culture contaminants, and number of pharmacy interventions in phase 3.

Results. Preliminary data indicate mean time targeted antibiotic therapy was 41:45, 35:58, and 27:39 hours:minutes in phases 1, 2, and 3, respectively. Mean time to ID and final susceptibilities was also reduced in phases 2 and 3. The duration of therapy for blood culture contaminants decreased from 53:50 in phase 1 to 32:48 hours:minutes in phase 2. Pharmacy residents in phase 3 successfully implemented 47 total interventions, 24 (51%) after identification.

Conclusion. Implementation of MALDI-TOF with and without stewardship intervention successfully decreased time to targeted antibiotic therapy in two community hospitals. Future directions include adding an evening MALDI-TOF run and simplifying pharmacy resident standard operating procedure.

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2010. A Significant Reduction in Empiric Vancomycin Days of Therapy for Suspected MRSA Pneumonia in Adult Non-ICU Patients After Implementation of a Rapid MRSA Nasal PCR Test with Antimicrobial Stewardship Intervention

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