O185
Oral Session
Non-molecular diagnosis of central nervous system and bloodstream infections

SELECTION OF BLOOD CULTURE MEDIA MATTERS - ANTIBIOTIC PRESCRIBING AND DE-ESCALATION ARE INFLUENCED BY RECOVERY RATE DIFFERENCES BETWEEN BLOOD CULTURE MEDIA

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Objectives: Current sepsis guidelines recommend rapid initiation of antibiotics followed by daily assessments for de-escalation. We aim to identify if differences in blood culture reporting between two manufactures' blood culture media would result in differences in antibiotic prescribing practices hospital-wide.

Methods: Over a 9 month evaluation period, adult aerobic blood cultures were collected from across our institution in both BACTEC Plus and BacT/Alert FAN media as part of routine order sets. Blood cultures were randomly distributed and processed per 5 day protocols in respective BACTEC FX and BacT/Alert 3D blood culture instruments. Resulting Gram stains from positive cultures were called to providers, and cultures were processed for identification and susceptibility testing. Medical charts of positive cultures were reviewed. Differences in blood culture positivity were assessed as neutral (detection in both blood culture media), BACTEC positive (positive only in BACTEC Plus medium) or BacT/Alert positive (positive only in BacT/Alert FAN medium). Changes in antibiotic prescribing practices were defined as antibiotic initiation, discontinuation or substitution. Two clinical decision points were evaluated: (i) within 2 hours of the initial Gram stain notification; and (ii) within 8 hours of the susceptibility report.

Results: A total of 9,395 cultures were collected during the study, resulting in 1,219 positive cultures, of which 831 were included for analysis. Neutral findings were observed in 363 (43.7%) cultures. Positive BACTEC findings were observed in 301 (36.9%) cultures. Positive BacT/Alert findings were observed in 167 (20%) cultures ($p<0.001$). For all cases reviewed, changes in antibiotic prescribing occurred within 2 hours of Gram stain notification, and within 8 hours of susceptibility reporting, in 65/371 (18%) and 130/441 (29%) cultures, respectively. Proportional to their totals, each medium prompted changes in antimicrobial prescribing in equal percentages: 17% within 2 hours of Gram stain notification and 30% within 8 hours of susceptibility reporting. However, BACTEC Plus and BacT/Alert FAN media did not isolate the same number of positive cultures. This difference in positivity rate between blood culture media led to discontinuation of antibiotics within 2 hours of Gram stain notification at a rate 4 times higher for positive cultures from the BACTEC Plus medium compared to the BacT/Alert FAN medium. Similarly, antimicrobial prescribing changes within 8 hours of the susceptibility report occurred at a rate 3 times higher for BACTEC Plus media.

Conclusion: Both media promoted antibiotic decision making with similar frequencies. However, since BACTEC Plus medium isolates twice as many organisms as BacT/Alert FAN medium, BACTEC facilitates twice as many antibiotic decisions to occur, including discontinuation, within 2 hours of Gram stain call and within 8 hours of susceptibility reporting. These findings are likely to impact hospital antibiotic stewardship programs and result in targeted antibiotic prescribing for patients.