The core of SeLux's technology is a novel assay for bacterial surface, QuantaMatrix Inc.: Zavante Therapeutics, Inc.: Scientific Advisor, Consulting fee; Theravance: Employee, equity interest.

2074. Performance and Impact Evaluation of Direct Rapid Antibiotic Susceptibility Testing on Antibiotic Treatment Accuracy in Clinical Setting

Methods. Two hundred eighty-three patients with positive blood culture (BC) bottles were included for analysis. BC bottles from these patients were processed by current microbiology analyzers: Microscan for Gram positive strains and VITEK2 for Gram-negative strains. At the same time, AST was performed using dRAST. The susceptibility results were reported to infectious diseases specialists who determined optimal antibiotics based on AST results. We compared the time differences and accuracy of dRAST with those of conventional method.

Results. Of 283 patients, 117 (41.5%) patients were infected with Gram positive bacteria, 163 (57.4%) patients were infected with Gram negative bacteria and 3 patients (1.1%) patients were infected with both Gram positive and Gram negative bacteria. The total turnaround time for conventional method and dRAST from blood culture collection was 78.3 ± 27.0 and 55.9 ± 18.9 hours, respectively. Seventy-seven out of 95 (81.1%) patients who received ineffective or suboptimal antibiotic treatment after confirming the results of Gram stain of 81 of 86 (94.2%) patients who received unnecessary broad-spectrum antibiotic treatment could have received adjusted optimal treatment based on dRAST.

Conclusion. The use of dRAST system would accelerate earlier effective antibiotic administration and reduce the antibiotic selective pressure in patients with bacteremia.

Disclosures. I. Choi, QuantaMatrix Inc.: Employee, equity interest. S. Han, QuantaMatrix Inc.: Employee, equity interest. D. Y. Kim, QuantaMatrix Inc.: Board Member, equity interest. S. Kwon, QuantaMatrix Inc.: Board Member, equity interest.

2075. The Hypothetical Impact of Accelerate Pheno on Time to Appropriate Therapy (TTAT) and Time to Optimal Therapy (TTOT) in an Institution with an Established Antimicrobial Stewardship Program and Rapid Genotypic Organism/Resistance Marker Identification

Background. Rapid organism identification (ID) and antimicrobial susceptibility testing (AST) can improve time to adequate therapy (TTAT) and optimal (TTOT). The Accelerate Pheno system (ACC) can provide ID and AST results within 7 hours. The objective of this study was to assess the hypothetical impact of ACC on TTAT and TTOT in an hospital with an established antimicrobial stewardship program and rapid genotypic organism and resistance marker ID.

Methods. Patients with positive blood cultures, at the Detroit Medical Center, from March 29, 2016–June 14, 2016, were retrospectively reviewed. ACC was run on unique blood cultures as part of the laboratory validation of the system. ACC results were not made available to clinicians. These results were utilized to determine the hypothetical impact of ACC on TTAT and TTOT that would have had real-time. This assessment was performed based on how clinicians modified antimicrobial therapy with regards to antibiotic choice and timing, once ID or AST were known. The assumption was that the same decisions that were made at the time of traditional AST would have been made when ACC information would have been available. In addition, the impact of ACC on total antimicrobial usage was assessed.

Results. The analysis included 148 patients. The median actual TTAT was 2.2 hours [interquartile range (IQR) 1.5–2.5 hours]. If ACC results had been available, TTAT could have been improved in 11 patients (7%), with a median potential decrease in the TTAT of 2.3 hours [IQR, 0.8–20.7]. The median actual TTOT was 40.7 hours [IQR, 21.3–74.1]. If ACC results were available, improved TTOT could have been achieved in 59 patients (40%), with a median potential decrease in TTOT of 24 hours [IQR 15.3–34.9]. The TTOT would have been achieved by earlier de-escalation in 53/59 (88%) patients. ACC implementation could have led to decreases in antibiotic usage for cefepime (17% reduction of actual use), amoxicillin/clavulanate (8%), and vancomycin (5%).

Conclusion. Given the aggressive nature of empiric therapy and the availability of other rapid diagnostic tests at our center, ACC would have had a minimal impact TTAT. However, largely due to the ability to more rapidly de-escalate, ACC could have led to a more rapid TTOT in 40% of patients, and significantly reduced the use of broad-spectrum antimicrobials.

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