P0530
Poster Session II
Molecular diagnosis of bloodstream infections

RAPID IDENTIFICATION OF MICROORGANISMS IN BLOOD CULTURES APPLYING THE FILMARRAY BLOOD CULTURE IDENTIFICATION PANEL

E. Leitner[1], S. Klingsbigel[1], B. Neuhold[2], M. Hoenigl[2], R. Krause[2], G. Feierl[1], A. Grisold[1]

[1]Institute of Hygiene Microbiology and Environmental Medicine, Medical University of Graz, Graz, Austria ; [2]Internal Medicine Section of Infectious Diseases and Tropical Medicine, Medical University of Graz, Graz, Austria

Objectives:
Sepsis is a life threatening medical condition caused by different infectious microorganisms. Culture-based methods represent the reference standard method for the detection and identification of pathogens, but they are time consuming and can be improved by using additional test systems. The novel FilmArray with the 'Blood Culture Identification Panel (BDIP)' (Biofire Diagnostics) is a user-friendly multiplex PCR system offering sample preparation, amplification and detection in one run with minimum hands-on-time. Aim of this study was to evaluate the FilmArray BDIP panel in positive blood cultures.
Methods:
The positive blood culture samples were anonymised passed over after routine processing from the microbiological laboratory at the Section of Infectious Diseases and Tropical Medicine, and the bacteriological laboratory at the Institute of Hygiene, Microbiology and Environmental Medicine, both Medical University of Graz. Only one positive sample per patient (BACTEC Plus Aerobic/F or BACTEC Plus Anaerobic/F blood culture bottles; Becton Dickinson Diagnostic Systems) was included in the study. The Test assay 'Blood Culture Identification Panel (BDIP)' simultaneously detects the 27 most important bacterial and fungal pathogens and three resistance mechanisms (*mecA*, *vanA/B*, KPC). The blood culture samples were tested with the FilmArray BDIP according to manufacturer's instructions and in parallel cultured for identification and susceptibility testing. Identification was carried out with the Vitek MS (bioMérieux) and susceptibility testing was carried out according to EUCAST guidelines.
Results:
Fifty-seven positive blood culture bottles were analyzed and compared to the reference standard blood culture. Blood culture results were as follows; 51of 57 (89.5%) positive blood cultures showed monomicrobial growth, 5 (8.8%) polymicrobial growth and one no growth, respectively. In the 51 monomicrobial samples 2 *C. albicans*, 19 gram-negative rods leaded by *E. coli* and 30 gram-positive cocci leaded by *S. aureus* were identified. In the 5 polymicrobial samples there was 1 mixture of gram-positives and 4 of gram-negatives. All together 65 microorganisms were detected in 56 samples. Concordant results for identification were achieved in 96.9% (63/65) and for resistance genes in 100% (6/6) with the most relevant detection of a vancomycin resistant Enterococcus (VRE) in this study.
Conclusion:
The FilmArray BDIP convinced as a rapid, easy to handle PCR system for the use in positive blood cultures without knowledge of gram-stain result. Especially integrated resistance genes allowed identifying a VRE which presents an important impact for treatment adaption in septic patients.