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RAPID IDENTIFICATION OF PATHOGENS FROM POSITIVE BLOOD CULTURES BY USE OF THE FILMARRAY BLOOD CULTURE IDENTIFICATION PANEL

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Objective: RAPID IDENTIFICATION OF PATHOGENS FROM POSITIVE BLOOD CULTURES BY USE OF THE FILMARRAY BLOOD CULTURE IDENTIFICATION PANEL

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Introduction: Sepsis constitute a major diagnostic and therapeutic problem. In patients with severe sepsis and septic shock mortality ranges from 40 to 60%. It is estimated that every year around 135.000 patients dies of sepsis complications in Europe. Gold standard for microbiological diagnostics of sepsis are blood cultures. Early administration of adequate antimicrobial treatment is of utmost importance. In patient with septic shock every hour of delayed adequate antimicrobial treatment is associated with significant increase in mortality. Rapid identification of pathogens from positive blood culture is therefore an important goal of the clinical microbiology laboratory. Molecular techniques play an increasing role in speeding this process.
BioFire FilmArray blood culture ID (BCID) panel (BioMerieux, France) is a two-stage, multiplexed PCR test, carried out in a closed, disposable, single-use pouch. It requires about 2 minutes for assay setup and provides results in approximately 1 h. It is designed to identify simultaneously 24 pathogens and pathogen groups of sepsis as well

as three antimicrobial resistance genes from the positive blood cultures.
Aim: The aim of the study was to evaluate the use of BCID panel in positive blood cultures at the Clinical Department of Clinical and Molecular Microbiology, University Hospital Centre Zagreb.
Metode: BCID panel was used simultaneously with routinely used metod for identification, namely matrix-assisted laser desorption/ionization mass spectrometry (MALDI-TOF MS) from the subculture on solid medium. Concordance in identification as well as time difference between BCID panel and routinely used method was compared.
Results: Twelve positive blood cultures bottles from eleven patients were analyzed. Six patients were hospitalized at the intensive care unit, four at the hematology ward and one at endocrinology ward. Out of twelve positive blood culture bottles, use of BCID panel achieved identification result in ten bottles. Results showed no detection in one bottle and invalid result from one bottle. Bottle with no detection was conventionally identified as Micrococcus luteus, currently not present in the BCID panel. Discrepancy beetween the BCID panel result (Staphylococcus) and routinely used method (Acinetobacter junii) was found in one bottle. A. junii is not present in BCID panel and direct Gram stain from positive blood culture demonstrated Gram negative bacilli and Gram positive cocci in clusters.
Conclusion: BCID panel is valuable and useful tool for rapid identification of pathogens from positive blood cultures. The user should be aware of method limitations including spectrum of panel (24 pathogens and three resistance genes) and cost.