

EV0526

ePoster Viewing

Diagnostic bacteriology – non-culture based, including molecular and MALDI-TOF

Application of MALDI-TOF MS combined with PBP2' latex agglutination test for MRSA screening

Marianna Pappné Ábrók¹, Andrea Lázár¹, Mária Szécsényi², Edit Urbán*¹

¹University of Szeged, Institute of Clinical Microbiology, Szeged, Hungary

²University of Szeged, Institute of Clinical Microbiology, Department of Clinical Microbiology, Szeged, Hungary

Background: Methicillin-resistant *Staphylococcus aureus* (MRSA) are significant pathogens that have emerged to cause nosocomial and community acquired infections. Rapid and accurate detection of MRSA is a very important step of clinical health care. Here, we report our experiences concerning to the combination of MALDI-TOF MS and PBP2' latex agglutination test (Oxoid) in the MRSA screening among patients at the Albert Szent-Györgyi Clinical Center of the University of Szeged (Szeged, Hungary) in 2015.

Material/methods: Samples of 120 patients were involved in the study. Distribution of the samples was the following: 41 nasal, 37 throat, 17 axillary, 14 inguinal and 11 other samples. All of them were screened by the standard culturing-based method to detect MRSA colonization. Susceptibility testing was performed in accordance with the EUCAST recommendations. For MALDI-TOF MS identification, sample preparation from the sediments of *S. aureus* selective enrichment broths was optimized and the analyses were carried out directly from the selective enrichment broths after 24 h incubation. If *S. aureus* was detected by the MALDI-TOF MS analysis, PBP2' latex agglutination test was also performed from the sediment.

Results: Sediments of 18-24-h long incubated selective enrichment broths of 120 samples were examined by MALDI-TOF MS. Almost all tests (99.2%) gave the same result as the traditional MRSA screening method. The positive and negative predictive values, sensitivity and specificity proved to be 100% and 99.1%, 87.5% and 100% respectively.

Conclusions: Combination of MALDI-TOF MS and PBP2' latex agglutination test is an efficient alternative to shorten the duration and to improve the efficiency of the MRSA screening. Using this technique, MRSA colonisation can already be reported 18-24 hours after the sample collection.