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P2759 Evaluation of AMR Direct Flow Chip for identification of antimicrobial resistant markers among asymptomatic carriers

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Background: Rapid identification of patients who are colonized with antimicrobial-resistant bacteria is crucial for infection control purposes, especially in regions with high endimicity. The aim of this study was the evaluation of AMR multiplex PCR assay (Master Diagnostica) using rectal and nasopharyngeal exudates from the same patient, in a single assay.

Materials/methods: Between 11/2017-8/2018 184 dual samples (92 rectal and 92 nasopharyngeal exudates) from 92 ICU patients of AHEPA Hospital were prospectively collected upon admission. The samples were analyzed with the AMR assay and conventional phenotypic methods in parallel in order to identify asymptomatic carriers colonized with ESBL-producing, carbapenemase-producing and/or VRE strains in rectal samples and by MRSA in nasal samples. AMR assay results were compared to the results of phenotypic assays performed in accordance with the infection control policy of our hospital.

Results: Regarding the detection of MRSA nasal carriers, both the phenotypic and AMR assay detected 9 positive samples. Nevertheless, 45 out of 46 coagulase-negative *Staphylococci* nasal samples that were positive for cefoxitin phenotypic test, were mecA positive by using AMR. With respect to rectal samples, AMR assay detected the resistance markers for extended spectrum b-lactamases (blaCTX-blaSHV) in 52 out of 52 samples; vancomycin resistance genes in 10 out of 10 samples; oxacillinases in 4 out of 4 samples; metallo-b-lactamases in 53 out of 53 samples; and KPC carpabenemases in 40 out of 42 samples.

Resistance marker	Sensitivity (%)	Specificity (%)
MRSA	100	100
CoNS mecA positive	98	89.1
Oxacillinases	100	97.7
Extended spectrum-b-lactamases (blaCTX-blaSHV)	100	97.5
Vancomycin resistance genes	100	96.5
KPC-carbapenemases	95	96
Metallo-β-lactamases	100	94.8

Conclusions: AMR Direct Flow Chip assay showed a clinical sensitivity and specificity higher than 90% demonstrating its ability to be employed as a useful diagnostic tool for MDR surveillance screening of high risk patients, such as those hospitalized in ICUs. Furthermore, the simultaneous detection of resistance markers both in nasal and rectal samples from the same patient in a single assay, in a time lower than 5 hours decreases the time of detection driving to prompt decisions about measures to contain the transmission of these organisms within

healthcare facilities.