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P2824 Evaluation of the FASTinov MAR kit for the detection of the mechanisms of resistance MAR among *Enterobacteriaceae*

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Background: Detection of mechanisms of resistance such as carbapenemases, AMPc or ESBL is required for clinical antimicrobial susceptibility categorization, infection control and public health purposes. FASTinov has developed a kit to detect those mechanisms directly from positive blood cultures. The kit, in a microplate format, involves flow cytometry analysis taking around 2 hours to give results. It should be performed whenever the FASTinov ® gramneg kit gives a positive screnning value: resistance to cephalosporins and/or decrease susceptibility to meropenem. In this study, the performance of FASTinov® MAR kit was evaluated in inoculated blood cultures.

Materials/methods: A total of 40 blood culture (BD) were spiked with bacteria that were previously positive in the screnning for enzymatic mechanisms of resistance with the FASTinov® gramneg kit. Quality control strains with known mechanisms of resistance were also included: *Kl. pneumoniae* ATCC BAA1705 positive for KPC; *Kl. pneumoniae* NCTC 13443, *E. coli* NCTC 13476 and *E. coli* ATCC 2452 with metalocarbapenemases; *Enterobacter cloacae* ATCC 13048 and *E. coli* ATCC BAA2452 positive for AMPc+porin loss. The BD bottles were inoculated with human donor blood and incubated until obtaining a positive flag. A protocol for extraction of microorganisms from BD bottles was followed according FASTinov® user instructions. The cells were then inoculated in the FASTinov® MAR kit and incubated for 1 hour; afterwards, the microplates were analyzed by the CytoFLEX (Beckman). A dedicated software, BioFAST, gave automatically the results. In parallel phenotypic method according to EUCAST protocol was performed. Categorical agreement (CA) and error rates (minor, major and very major) were calculated.

Results: CA between FASTinov® MAR kit and EUCAST protocol was 96%. ESBL, carbapenemase, and AmpC positive strains, were detected with a sensitivity of 100%. The specificity of FASTinov MAR kit was 92% for detection of ESBL, 95% for carbapenemases, and 95% for AmpC.

Conclusions: The phenotypic method based on flow cytometry developed by FASTinov® provided fast and reliable results regarding the detection of resistance mechanisms among *Enterobacteriacae* in a TTR of 2 hours directly from blood cultures. This will support a prompt antibiotic stewardship and also allow the isolation of the patient in useful time.