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P2765 Rapid detection of extended-spectrum beta-lactamase producing *Enterobacteriaceae*

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Background: Multidrug resistance in Enterobacteriaceae represents a serious threat to public health, since the accumulation of resistance determinants may be the source of difficult-to-treat infections in humans. One of the most important resistance trait is related to resistance to broad-spectrum cephalosporins through production of extended-spectrum β-lactamases (ESBL). Conventional detection of ESBL production remains time-consuming (24 to 48 h). A home-made rapid and biochemical test has been developed based on the in-vitro detection of a cephalosporin (cefotaxime) hydrolysis that is inhibited by tazobactam addition. The ESBL activity is evidenced by a color change of a pH indicator. Here, we have evaluated the industrial version of this test, the Rapid ESBL NP test (Liofilm Chem, Italy) that will be launched in 2019.

Materials/methods: The Rapid ESBL NP test was applied to cultures of enterobacterial strains possessing well-characterized ß-lactamase gene contents. Those strains were *Escherichia coli* (n=51), *Klebsiella pneumoniae* (n=30), *Enterobacter cloacae* (n=5), *Citrobacter freundii* (n=3), *Morganella morganii* (n=1), *Serratia marcescens* (n=1) and *Proteus mirabilis* (n=1). Those 92 isolates included 31 ESBL producers (CTX-M-, SHV-, TEM-, PER-, GES-, VEB-type- and 61 non-ESBL producers including carbapenemase producers (KPC-, OXA-48-, IMP-, VIM-, NDM types) and AmpC overproducers (plasmid and chromosome-encoded).

Results: The results of the Rapid ESBL NP test were obtained mostly within 1 h. Sensitivity and specificity of the test for ESBL detection were 94.6 and 86%, respectively. The carbapenemase producers with or without ESBL production were not identified as ESBL producers.

Conclusions: This newly-developed Rapid ESBL NP test possesses high specificity and sensitivity. It may be used for detecting ESBL producers for infection control and antibiotic stewarship purposes. It clearly differentiates ESBL producers from carbapenemase producers. After further evaluation such test might be used for identification of ESBL producers from blood cultures and urines.