Abstract (eposter session)

Carbapenemase detection in Enterobacteriaceae with Etest®

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Objective: Carbapenemase-producing Enterobacteriaceae (CPE) represent an increasing worldwide problem, leaving few therapeutic options for treating severe infections. Accurate detection of these isolates is necessary to control and prevent nosocomial infection. A study was designed to evaluate a simple algorithm for the respective detection of class A (KPC), class B (MBL) and class D (OXA-48) CPE that incorporates the use of three Etest strips: Etest® KPC (in development), Etest® MBL MP/MPI and Etest® Temocillin abbreviated as Etest® TMO (RUO product). Method: A total of 118 genotypically characterized CPE strains (24 MBL, 48 KPC, and 32 OXA-48) and 14 carbapenemase-negative Enterobacteriaceae strains with reduced carbapenem susceptibility were tested. All the isolates showed a meropenem MIC > 0.125 mg/L (EUCAST epidemiological cut-off). Each strain was tested using the standard procedure for Etest® MIC testing for Gram negative aerobes. A strain was assigned as CPE if (i) Etest® MBL or Etest® KPC was positive, or (ii) Etest® MBL and Etest® KPC were negative but Etest® TMO was > 64 mg/L. The strain was non-CPE when both Etest® KPC and Etest® MBL were negative and Etest® TMO was <=64 mg/L. The carbapenemase status was non-determinable (ND) when the Etest® MBL result was ND, Etest® KPC was negative, and Etest® TMO was <=64 mg/L. Results: This algorithm detected 99 out of 104 CPE. Only one isolate was found falsely negative (a KPC producing K. pneumoniae) and 4 were ND (3 KPC and 1 MBL). Among the 15 non-CPE isolates, 8 were correctly assigned as negative for carbapenemase, 6 were ND, and 1 was falsely positive with a Temocillin MIC just above the cut-off. Conclusion: This Etest® algorithm for CPE detection is a promising and easy-to-use tool that is well adapted to the clinical need for preventing dissemination of those multidrug resistant isolates. It may represent a cheaper alternative to nucleic acid based tests.