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P2608 Comparison between molecular and cultural test in a multi-centre point prevalence surveillance study of carbapenem-resistant Enterobacterales in long-term care facilities' residents

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Background: In countries with high endemicity for carbapenem-resistant Enterobacteriaceae (CRE) colonization of long-term care facilities (LTCFs) residents play an essential role in the spread between community and healthcare facilities. Rapid identification of colonized patients are therefore essential for a prompt start of infection control measures. Aim of the study was to compare specificity and sensitivity of cultural and rapid molecular tests in detecting CRE on rectal swab in LTCFs residents in a high endemic country.

Methods: A one week point prevalence study was performed in 9 LTCFs to assess prevalence of CRE in residents and compare sensitivity and specificity of cultural and molecular tests. Rectal swabs were inoculated onto ChromID ESBL agar (bioMerieux, Marcy l'Etoile, France) with an Ertapenem disk (10ug) and on McKonkey agar with a Meropenem disk (10ug).Resistance to carbapenems were confirmed with immunocromatographic Lateral flow assay Carba5 (NG Biotech). Rapid molecular test were done using the CRE ELITe MGB kits (Elitech Group, Italy) with the ELITe InGenius RT (Real Time PCR) which detect KPC, NDM, VIM, IMP, and OXA-48 like families, performing a complete run of 12 samples in 2h and 30 min. Sensitivity, specificity and negative and positive predictive value were calculated according to standard methods.

Results: Overall, we screened 398 residents. CRE were identified in (17/398) 4.3% of cultures and in (30/398) 7.5% of molecular tests with a concordance of 96%. CRE ELITe MGB identified 12 positive residents not identified from conventional cultures (12/30, 40%). The carbapenem resistant genes were classified with the real time PCR as KPC in 86% of the positive samples; the remaining were NDM/VIM/ IMP. Sensitivity and specificity of the molecular test were both 94%, with a NPV of 99.7%.

Conclusions: Molecular tests identify 40% more CRKP colonized residents in LTCFs than conventional cultures. Cost-effectiveness studies are needed to define the role of rapid tests linked to infection control measures in containing the spread of CR-KPC outside the hospital in high endemic countries.

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