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P1070 Distributions of carbapenemase-producing gene from CRE strains of Korea (2014 - 2017)

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Background: The spread of carbapemase- producing Enterocateriaceae has become significant problem worldwide. But the occurrence of carbapenem resistant enterobacteriaceae (CRE) caused the difficulty of treatment of infectious disease. In this study, we investigated the species distribution and resistant rate of CRE (from 2014 to 2017) to carbapenem agents including imipenem, ertapenem, meropenem, and doripenem.

Materials/methods: Using the carbapenem resistant enterobacteriaceae (CRE) strains, carbapenemase gene was investigated by conventional PCR method and analyzed by sequence alignment method. The carbapenemase target was IMP, OXA-48, VIM, NDM, KPC and GES genes. According to the amino acid changes, gene sub type was determined.

Results: Among total of 8,637 CRE strain, 4,781 CPE strains were analyzed. Most of CPE strains were K. pneumoniae (60~76%), and E. coli (9~16%). The type of carbapenemase gene were classified into 44 types. The proportion of KPC-2 and NDM-1 types for 4 years was increased from 7.8%, 3% to 43%, 10%, respectively. The proportion of CPE in CRE strains was increased from 31% to 82%. Especially, E. coli having NDM-5 and OXA-181 genes showed 3.4% increased proportion rate in 2017 compared to 0.1%~0.3% rate in 2014~2016. And various new CPE gene type like KPC-2 and VIM-1, KPC-2 and OXA-181, NDM-1 and GES-5, OXA-505 was confirmed in 2017.

Conclusions: In Korea, the proportion of CRE is increasing and carbapenemase producing strains also increasing. The CPE gene type is continuously expanded and new CPE gene type is occurring. It causes danger public health problem.