

PLB37

Paper Poster Session

Late breaker session: Colistin resistance

Colistin-resistant Gram-negative pathogens lacking the mcr-1 gene isolated from clinical specimens of hospitalized patients in Turkey

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Background: Today, colistin is used as drug of last resort in cases that are not curable by standard antibiotic therapy. However, the re-introduction of colistin has also brought the resistance problem for this drug. In the last few years, several cases of colistin resistant gram-negative strains were reported among patients around the world including Turkey. The objective of this study is to conduct the surveillance of the existence of mcr-I gene among colistin resistant gram-negative pathogens isolated from hospitalized patients in a Turkish metropolitan hospital complex

Material/methods: Determining whether mcr-I is disseminated to our gram-negative collection, we investigated the presence of mcr-I gene among the colistin resistant Gram-negative pathogens isolated from different body fluids (e.g. blood, urine, endotracheal aspirate, bronchoalveolar lavage, abscess, wound and bile) of hospitalized patients between April 2014 - December 2015. A colistin minimum inhibitory concentration is detected using Vitek-2 and confirmed by E-test. For colistin resistant isolates, the presence of the novel gene was detected using PCR based on the primers CLR5-F (5'-CGGTCAGTCCGTTTGTTC-3') and CLR5-R (5'-CTTGGTCGGTCTGTA GGG-3') described by Yi-Yun Liu et al [6]. All 37 isolates were found to be PCR-negative, not harboring this colistin resistance gene.

Results: During this period, 37 colistin-resistant Gram-negative (*Klebsiella pneumoniae* n=32, *Acinetobacter baumannii* n=3, *Citrobacter braakii* n=1, and *Acinetobacter junii* n=1) pathogens were isolated from 37 different patients. All 37 isolates were found to be PCR-negative, not harboring this colistin resistance gene.

Conclusions: In our investigation, we have found that none of the resistant strains carry mcr-1 genes. It is claimed that this mechanism first appeared in pathogens from farm animals, as a result of intensive use of colistin in husbandry. In Turkey, the use of antimicrobial agents as growth factors in animals has been banned since 2006. The rare veterinary use of colistin and

the non-existence of *mcr-I* gene according to PCR tests of all 37 resistant clinical isolates might be an implication that the colistin resistance mechanism in Turkey is due to the modification of lipopolysaccharide biosynthesis pathways (or other vertical mechanisms) under colistin stress rather than a gene transfer across resistome-mobilome ecosystem.