

6th Clinical Microbiology Conference

October 20-22, 2016 Rome, Italy

Changing characteristics of colistin-resistant carbapenemase-producing *Klebsiella pneumoniae* from bloodstream infections

Angeliki Mavroidi, Eleftheria Palla, Maria Katsiari, Sofia Likousi, Zoi Roussou, Charikleia Nikolaou and Evangelia D Platsouka
General Hospital of Nea Ionia "Konstantopouleio-Patission", Greece

Colistin is often used as salvage therapy for the treatment of infections caused by multidrug-resistant *K. pneumoniae*. The aim of the present study was the determination of colistin resistance rates among carbapenemase-producing (CP Kp) and the characterization of colistin-resistant (COL-R) CP Kp recovered from bloodstream infections during May 2011-December 2015 in a Greek Hospital. Identification of the isolates to the species level and antibiotic susceptibility testing were performed by the MicroScan® (Siemens Healthcare, PA, USA). The MICs of imipenem, meropenem and colistin were additionally determined by the Etest method, according to the interpretive criteria of the Clinical and Laboratory Standards Institute (CLSI, 2014). Phenotypic screening for carbapenemase production was performed by the modified Hodge test and the boronic acid/EDTA combined-disk test. DNA extraction was performed using the QIAcube (Qiagen, Düsseldorf, Germany). Carbapenemase-encoding genes were detected by PCR. During the study period, COL-R represented 30% of 95 CP Kp isolates, while a rapid increase was observed in the incidence of COL-R CP Kp from 2014 to 2015 (25% to 55%, respectively). The majority of COL-R CP Kp (69%) was recovered from patients in the ICU. The COL-R CP Kp carried the *bla*KPC (n=16), *bla*OXA-48 (n=9), *bla*OXA-48+*bla*NDM (n=3) and *bla*NDM (n=1) genes. The first COL-R CP Kp carrying the *bla*OXA-48 and *bla*NDM were isolated on February 2015. The alarming increase in the colistin resistance rates and the spread of different carbapenemase genes among CP Kp recovered from bloodstream infections further complicates the therapy and infection control measures for combating this organism.

Biography

Angeliki Mavroidi has completed her PhD from National and Kapodistrian University of Athens, Greece and Postdoctoral studies from Imperial College London, UK. She has published 23 papers in reputed journals. She is a Member of the European Society of Clinical Microbiology and Infectious Diseases (ESCMID).

amavroidi@live.com

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