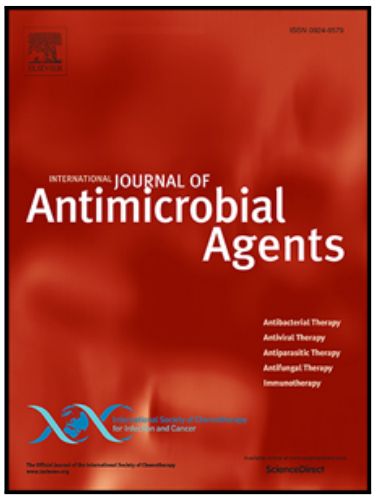

Colistin resistance in carbapenemase-producing Klebsiella pneumoniae bloodstream isolates: evolution over 15 years and temporal association with colistin use by time series analysis

Giannoula S. Tansarli , Joseph Papaparaskevas , Mina Balaska , Michael Samarkos , Angeliki Pantazatou , Antonios Markogiannakis , Marina Mantzourani , Katerina Polonyfi , George L. Daikos

PII: S0924-8579(18)30179-1
DOI: 10.1016/j.ijantimicag.2018.06.012
Reference: ANTAGE 5470

To appear in: *International Journal of Antimicrobial Agents*

Received date: 8 February 2018
Revised date: 27 May 2018
Accepted date: 16 June 2018

Please cite this article as: Giannoula S. Tansarli , Joseph Papaparaskevas , Mina Balaska , Michael Samarkos , Angeliki Pantazatou , Antonios Markogiannakis , Marina Mantzourani , Katerina Polonyfi , George L. Daikos , Colistin resistance in carbapenemase-producing Klebsiella pneumoniae bloodstream isolates: evolution over 15 years and temporal association with colistin use by time series analysis, *International Journal of Antimicrobial Agents* (2018), doi: 10.1016/j.ijantimicag.2018.06.012

Highlights

- During the 15-year study period 313 carbapenemase-producing Klebsiella pneumoniae blood isolates were recovered and tested for susceptibility.
- Colistin resistance rate increased from 0% in 2002 to 26.9% in 2016 (R2=0.5, p<0.01).
- Time series analysis revealed a temporal association between colistin use and resistance; increase of colistin use by 1 DDD/100 patient-days led to 0.05 increase in the incidence rate of colistin resistance.
- Colistin use and prior levels of colistin resistance could explain 69% of colistin resistance.

Colistin resistance in carbapenemase-producing *Klebsiella pneumoniae* bloodstream isolates: evolution over 15 years and temporal association with colistin use by time series analysis

Giannoula S. Tansarli[3], Joseph Papaparaskevas[2], Mina Balaska[1], Michael Samarkos[1], Angeliki Pantazatou[3] Antonios Markogiannakis[4], Marina Mantzourani[1], Katerina Polonyfi[1], George L. Daikos[1]

1. First Department of Medicine, National and Kapodistrian University of Athens, Laikon General Hospital, Athens, Greece
2. Department of Microbiology, Medical School, National and Kapodistrian University of Athens, Athens, Greece
3. Department of Clinical Microbiology, Laikon General Hospital, Athens, Greece
4. Department of Pharmacy, Laikon General Hospital, Athens, Greece

Corresponding author

George L. Daikos, MD, PhD

First Department of Medicine, Laikon General Hospital

Aghiou Thoma 17, Athens, 115 27, Greece

Email: gldaikos@gmail.com

Short title: Colistin resistance in *K. pneumoniae*

Abstract