Astra Vitkauskiene et al., Clin Microbiol 2016, 5:5(Suppl)
http://dx.doi.org/10.4172/2327-5073.C1.024



## Nosocomial dissemination of multidrug resistant *Pseudomonas aeruginosa* in Lithuania

**Astra Vitkauskiene and Greta Mikucionyte**
Lithuanian University of Health Science, Lithuania

Despite the advances in hospital care and the introduction of a wide variety of antimicrobial agents, *Pseudomonas aeruginosa* (*P. aeruginosa*) continues to be a common cause of nosocomial infections and are important pathogens which cause problems clinically as a result of its high resistance to antimicrobial agents. Treatment of *P. aeruginosa* infections is usually difficult and mortality is high. In our study we found that 53.7% of clinical *P. aeruginosa* strains were resistant to carbapenems. Carbapenem-resistant strains more frequently were resistant to majority of tested antibiotics (to ceftazidim, piperacillin, ciprofloxacin, gentamicin, amikacin), comparing to carbapenem-sensitive strains (P<0,001). 41 (56.0%) of carbapenem resistant strains had MIC value higher than 16 μg/ml; 6 (14.6%) stains out of these have shown to be high-level ceftazidime resistance with MIC >64 μg/ml. Cephalosporin with β-lactamase inhibitor combination inhibited 53 out of 73 carbapenem-resistant *P. aeruginosa* at concentration less than 2 μg/ml. We found 9 (13.4%) fully resistant strains with MIC >32 μg/ml and 58 (86.6%) intermediately resistant strains with MICs range between 2 and 16 μg/ml to aztreonam. Our study has shown that more than 50% (n=28) of ciprofloxacin resistant isolates exhibited MIC values above 16 μg/ml. Tobramycin had activity against 56% (n=41) of tested isolates which twenty four were inhibited at MIC below 1 μg/ml. However more than 65% (n=21) of tobramycin resistant strains had MICs above 16 μg/ml. β-lactam resistance was caused by chromosomal mechanisms (AmpC±OprD) in 54 isolates out of 73 (74%). In 16 (22%) of *P. aeruginosa* strains the presence of a carbapenemase was found and three isolates were ESBL produces.

### Biography

Astra Vitkauskiene has completed her PhD in Medical Sciences at Kaunas University of Medicine, Institute for Biomedical Research in 2008. She is the Head of Department of Laboratory Medicine in Lithuanian University of Health Science and Physician-Microbiologist, Head of Laboratory of Microbiology in Hospital of Lithuanian University of Health Science Kaunas Clinics. She has published more than 50 papers in reputed journals.

astravitka@hotmail.com

**Notes:**