P0293

Paper Poster Session II

Focus: Acinetobacter, Pseudomonas and other nonfermenters

Prevalence of 16S rRNA methylase genes in *Acinetobacter baumannii* isolates in Greece in a three-year period

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Objectives: Since 2011, a continuous increase in resistance rates of aminoglycosides, mostly of tobramycin, in ICU and medical wards, among *Acinetobacter baumannii* isolates was observed in data presented by Whonet Greece. The aim of this study was to investigate the prevalence of 16S rRNA methylase genes in consecutively collected *A. baumannii* isolates in Athens, Greece.

Methods: *A. baumannii* isolates resistant to both amikacin and gentamicin (n=243), consecutively collected during a three year period (2010 - 2012) in our Infectious Diseases Laboratory, were tested further for MIC determination to amikacin, gentamicin, tobramycin, netilmicin, apramycin and neomycin with the broth dilution technique. Isolates with MICs >=512 mg/L to at least the first four aminoglycosides were examined for the presence of 16S rRNA methylase genes (*armA, rmtB, rmtC, rmtA, rmtD* and *npmA*) by PCR. Molecular typing was performed by REP-PCR. Carbapenemase production was confirmed by PCR.

Results: Fifty five (22.6%) *A. baumannii* isolates were positive for *armA* and highly resistant to all clinically used aminoglycosides tested (MICs >=512 mg/L). Apramycin MICs ranged from 32 to 64mg/L, with an MIC50 of 32 and an MIC90of 64mg/L. Neomycin MICs ranged from 4->512, with both MIC50 and MIC90 >512mg/L. All *armA*- bearing *A.baumannii* strains were OXA-23 producers with 94.6% of them being susceptible only to colistin. All *armA*-*A.baumannii* isolates were clonally related. The prevalence of *armA*-positive *A.baumannii* isolates were 0%, 19.7% and 86.2% in the years 2010 – 2011 – 2012 respectively.

Conclusions: Our data demonstrate an increasing prevalence of *armA*-positive *A.baumannii* isolates since 2010 and a strong connection to OXA-23 carbapenemase. OXA-23-producing *A. baumannii* was first reported in 2012 from clinical specimens taken in 2010 and 2011 at the University Hospital of Larissa in central Greece, while since 2009 the predominant oxacillinase among carbapenem-resistant *A. baumannii* in Greek hospitals was the OXA-58. The spread of one clone of XDR isolate producing both carbapenemase OXA-23 and 16S rRNA methylases raises clinical concern and may become a major therapeutic threat in the future.