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Abstract (poster session)

First description of the metallo-betalactamase GIM-1 in Acinetobacter pittii (formerly Acinetobacter genomospecies 3)

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Objectives: Multidrug-resistance in species of the Acinetobacter baumannii-calcoaceticus complex is an increasing problem since respective strains might cause difficult to control outbreaks in hospitals. Multidrug-resistance in those species is mainly observed in A. baumannii, whereas A. pittii (formerly Acinetobacter genomospecies 3) tends to be more susceptible. Carbapenem resistance in Acinetobacter spp. is mainly caused by class D carbapenemases like OXA-23 and in some strains by metallo-betalactamases like IMP, SIM or NDM. The metallo-betalactamase GIM-1 has never been described in Acinetobacter spp.. Methods: A. pittii strains with reduced susceptibility to imipenem were referred to the German reference laboratory for multidrug-resistant gramnegative bacteria. Species identification was checked by MALDI-TOF analysis and rpoB sequencing. Carbapenemases were tested for by a combined test using EDTA, a bioassay based on cell-free extracts as well as PCRs for OXA carbapenemases and metallo-betalactamases. The integron structure was sequenced with specific primers. Strain typing was done by pulsed-field gel electrophoresis (PFGE) and identification of a GIM-1 harbouring plasmid was performed by S1 nuclease restriction followed by Southern Blot hybridization. Results: GIM-1 was found in four A. pittii strains all of which displayed EDTA synergy both in the combined disk test and the bioassay based on cell-free extracts. No other carbapenemase gene was found in those strains. GIM-1 was always part of a class 1 integron. Although strains showed no relatedness when tested by PFGE, all of them harboured GIM-1 encoding plasmids of the same size (approximately 60 kb). Conclusion: The GIM-1 carbapenemase has spread to the species A. pittii (formerly Acinetobacter genomospecies 3) and is obviously transferred by an identical plasmid. The further spread of carbapenemases in this species needs to be monitored carefully.