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Abstract (poster session)

Emergence of carbapenem-resistant Acinetobacter baumannii producing OXA-23 gene in a major Saudi Arabian hospital

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Objectives: Acinetobacter baumannii is an important and opportunistic pathogen associated with immuno-compromised patients in intensive care units (ICUs) worldwide. The increase of carbapenem resistance in Acinetobacter baumannii is a global concern since it limits the range of therapeutic alternatives. Carbapenem resistance in Acinetobacter baumannii is largely manifested by class D beta-lactamases,comprising OXA-23-like, OXA-40-like, OXA-51-like and OXA-58-like beta-lactamases. Some of these enzymes are able to hydrolyze carbapenems and responsible in multi-drug resistance. OXA-51-like beta-lactamases are present in all isolates of A. baumannii and carbapenem resistance has sometimes been associated with this gene. The emergence of MDR A. baumannii has been reported in several hospitals in Kingdom of Saudi Arabia, the aim of this work is to investigate the disseminations of carbapenem resistance in A. baumannii in a major Saudi Arabian hospital. Materials and Methods: A total of 29 non-repetitive, strains collected between January 2011 and April 2011 from different specimens from King Faisal Specialist Hospital and Research Centre (KFSHRC) in Riyadh. All isolates were identified presumptively by the Vitek compact II system. PCR was used to identify not only the intrinsic blaOXA-51-like gene but also the genes encoding the blaOXA-23. The MIC of antibiotics was determined by dilution test according to BSAC guidelines. Results: Twenty-nine clinical isolates were identified as A. baumannii by having the intrinsic of blaOXA-51-like gene. All isolates except one were resistant to imipenem (MIC > 16), three of which were highly resistant (MIC > 32mg/L). The sensitive strain had an MIC <= 1mg/L. All isolates were also resistant to meropenem, 25 of which had MICs > 32mg/L, two isolates had MICs = 16 mg/L. One strain was intermediate (MIC > 4 mg/L) and another sensitive (MIC MIC <= 0.5 mg/L). The OXA-23 beta lactamase was the cause of imipenem and meropenem-resistance in 14 strains, which were resistant to carbapenems because they carried this gene of beta-lactamase and no other; there was one strain harbouring the OXA-23 beta-lactamase which was sensitive to both carbapenems. Conclusion: The high level of multi-resistance in carbapenems in A. baumannii responsible for infection in those patients due to the dissimination of the OXA-23 beta lactamases in this Saudi Arabian hospital.