Diabetic patients are threatened by “superbugs” Acinetobacter baumannii In Saudi Arabia hospitals

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**Background:** One of the greatest threat to the recent generation of antibiotics is the increasing prevalence of bacterial resistant, specially Gram-negative bacteria. *Acinetobacter baumannii* is one of the most important superbugs becoming increasingly prevalent in patients with diabetes mellitus in Middle East particularly in Saudi Arabia. We have shown that diabetic patients are more susceptible to acquire infection with these type of superbugs *A. baumannii* than the rest of the population. Carbapenem resistance in *A. baumannii* limits therapeutic options and is largely manifested by β-lactamases and metallo-β-lactamase that play a significant role in mechanisms of drug-resistance in diabetic patients. The aim is to investigate the level of threat of these pathogens to diabetics and the mechanisms of drug-resistance of patients in Saudi Arabia hospitals.

**Methods & Materials:** A total of 64 non-repetitive, strains collected between 2008 to 2012 from different specimens from diabetic patients from King Faisal Specialist Hospital and Research Centre, Riyadh. All isolates were identified by Vitek system. Multiplex PCR using primers for *bla*OXA-51, combined with primers for *bla*OXA-23, *bla*OXA-24/40, and *bla*OXA-58 was employed. PCR was used for detection of β-lactamase and metallo-β-lactamase genes and insertion sequences IS elements. Pulsed-field gel electrophoresis (PFGE) has been performed. MICs was determined by dilution method.

**Results:** Sixty-four clinical isolates of *A. baumannii* having *bla*OXA-51-like gene. All isolates were resistant to imipenem and meropenem (MIC > 16 - 32 mg/L) except four were intermediate (MIC = 8 mg/L) and Six were susceptible (MIC 0.5 - 2 mg/L) to both of them. All isolates were sensitive to tigecycline and colistin (MIC 0.5 - 2 mg/L) except four were resistant (MIC 8-32 mg/L) and three were intermediate to tigecycline only (MIC 4 - 8). The cause of resistance was from β-lactamase of *bla*OXA-23 and *bla*OXA-24/40 and metallo-β-lactamase *bla*VIM and *bla*SPM. Fifty-nine isolates were possess the insertion sequence ISAba1. PFGE showed Nine clusters of *bla*OXA-51-like enzymes.

**Conclusion:** Carbapenem-resistant *Acinetobacter baumannii* is a serious superbugs threaten diabetic patients due to the circulation of β-lactamases and metallo-β-lactamase in Saudi Arabian hospitals. Furthermore, the emergence of tigecycline plus colistin resistance is causing a treatment shortfall for these patients.

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