Characterization of carbapenem-resistant Acinetobacter baumannii strains isolated from hospitalized patients in Palestine

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Introduction
The increase in the incidence of hospital acquired infections due to A. baumannii (MDR-AB) mandates characterizing the strains circulating in Palestinian hospitals.

Objectives
Determine the antibiogram of the MDR-AB. Identify the genes responsible for the carbapenem and the aminoglycosides resistance. Identify the presence of the two virulence genes OmpA and epsA. Determine the strains types of the MDR-AB isolated from Palestinian hospitals.

Methods
72 single patients MDR-AB collected from all over Palestine, except Gaza, were included in the study. The CLSI guidelines were followed to determine the antibiogram of the isolates. The presence of the carbapenem resistance genes blaOXA-23, blaOXA-24, blaKPC, blaNDM and the aminoglycoside resistance genes aphA6 and aphA1 were determined by PCR. Moreover, the two A. baumannii virulence genes OmpA and epsA, were evaluated by PCR. Finally MLST was performed on 13 isolates to determine the Strain Type (ST) of the isolates.

Results
All the isolates were resistant to all the β-lactam antibiotics including the carbapenems. Of the 72 isolates, 77.9% positive for blaOXA-23, 14.7% positive for blaOXA-24, 4.4% positive for blaOXA-58. In addition, 5.88% and 0% were positive for blaNDM and blaKPC, respectively. Moreover, of the 72 isolates none were positive for aphA6 gene while 92% were positive to the aphA1 gene. The only two antibiotics that showed a non-resistant profile were colistin sulfate (78%) and tigecycline (95%). 98.5% of the isolates possessed the OmpA biofilm producing virulence gene. Finally, MLST of 13 isolates revealed that more than one strain of A. baumannii is circulating in the Palestinian hospitals, 7 isolates ST 208 (53.8%), 2 isolates ST 218 (15.4%), 1 isolates ST231 (7.7%), 1 isolates ST348 (7.7%) and 2 isolates new ST (15.4%).

Conclusion
The detection of these extremely drug resistant pathogens in Palestine was a strong reminder of the importance of mandating that the infection control programs in all the hospitals must be active in order to reduce the spread of these deadly pathogens.

Disclosure of interest
None declared.

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