Reviewer's report

Title: Risk factors for multi-drug resistant Acinetobacter baumannii bacteremia in patients with colonization in the intensive care unit

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Reviewer: Saad Nseir

Reviewer's report:

The authors performed a retrospective study to determine risk factors for bacteremia related to A. baumannii in ICU patients with A. baumannii colonization. 200 patients were included during a 2-yr period. Independent risk factors for A. baumannii bacteremia included infection and respiratory failure at ICU admission, mechanical ventilation, central venous catheter, bacteremia related to other microorganisms and prior antibiotic treatment.

1. Unfortunately, no new information is provided by the authors. All the risk factors identified by this study are well-known risk factors for A. baumannii, and other MDR bacteria. The conclusion provided by the authors is not applicable in clinical practice. They stated that ICU patients with colonization related to A. baumannii and these risk factors should be considered for early appropriate antibiotic treatment. However, all of these risk factors are present in all severely ill patients. The authors should better outline the need to remove mechanical ventilation and CVC as soon as possible since they are the only modifiable risk factors.

2. It is unclear, at least to me, if colonization was taken into account at ICU admission or during ICU stay. In Methods (page 6 first para) we understand that only patients with colonization at ICU admission were taken into account. However, in table 2, the authors stated that time from ICU admission to colonization was 12 vs 6 days.

3. How colonization was diagnosed? Have the authors performed screening at ICU admission and during ICU stay?

4. Time at risk was significantly shorter in patients with bacteremia compared with controls. Please explain this unusual finding.

5. The percentage of patients with A. baumannii colonization at ICU admission (46%) is impressive. Please comment.

6. How mixed bacteremia were analyzed? Were patients with polymicrobial bacteremia excluded?

7. Authors stated that continuous variables were analyzed using Student’s t-test. However, in non-normally distributed quantitative variables, they should have used a non-parametric test such as Mann Whitney U test. Was distribution of
quantitative variables tested? In addition, the authors have included a very large number of variables in the logistic regression model. Were interactions between these variables tested?

8. Results are repeated in text and results. Result section should be substantially shortened.

9. How many patients developed A. baumannii bacteremia without prior colonization, and how these patients were analyzed?

10. In Table 5, the authors provide results on prior antibiotic exposure. However, no information is provided on duration of this exposure. The duration of exposure to different antibiotics is an important risk factor for subsequent emergence of A. baumannii.

11. In background section, authors stated that multiple antimicrobial resistances in A. baumannii enhanced its virulence. I am not aware of studies suggesting such a mechanism. Please provide a reference for this statement.

12. Minor: page 7, last para: neutrophil count <1500?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests