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: Wen-Chien Ko

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Comments to the authors -

The present study works on the retrospective analysis of risk factors for the development of MDR AB bacteremia among the ICU patients with MDR AB colonization. Much clinical information was collected and analyzed, and some risk factors were regarded to be independently associated with the occurrence of AB bacteremia among colonized patients. However, it is unusual that more than a half of colonized patients developed bacteremia in the study hospital.

Major Compulsory Revisions

1. For the multivariate analysis, though seven independent factors were related to the subsequent development of MDR AB bacteremia after colonization. However, these factors were not independent but interacting. ICU admission prior to infection and bacteremia due to other pathogens after MDR AB colonization will be possibly related to the number of prior antimicrobial agents. Also, ICU admission due to respiratory failure will be related to maintenance of mechanical ventilation or endotracheal tube. Particularly, all patients with respiratory failure received mechanical ventilation support, as mentioned in the Discussion. How could they be independently related to the primary outcome? Therefore, the interactions between these factors need to be examined, and another model of multivariate analysis should be considered to exclude their interactions between factors.

2. Clinical implication of the findings of the present study will be limited in clinical practice. The authors suggest in the end of Abstract that their findings will provide the identification of at-risk patients with MDR AB colonization for later development of bacteremia, and the former population can be benefited by early appropriate antimicrobial therapy. However, one important limitation of such a strategy will the timing of early appropriate therapy, since it remains impossible to clearly recommend when to give these antimicrobial agents, since there were chances of developing bacteremia, other than MDR AB bacteremia, esp. Enterococcus bacteremia, after AB colonization.

Minor Essential Revisions

3. Are these isolates genotyped for clonal relatedness to consider the possibility of an outbreak of MDR AB infections in the study ICUs?

4. More than one hundred episodes of MDR AB bacteremia were present in the 2-year study period. What is the overall burden of AB bacteremia or infections in
the study ICUs? Are there episodes of XDR or PDR AB infections or bacteremia?

5. The study population included those with MDR AB colonization at the time of admission. Do the authors indicate the ICU admission or hospital admission? Why did none become colonized with MDR AB during ICU admission? Are the former excluded from the study?

6. The isolation of coagulase-negative Staphylococcus (CoNS) from blood cultures before and after the MDA AB colonization was concerned by the authors. Please clarify the definition of significant CoNS bacteremia in the study. Was any episode of CoNS isolation from the blood culture included for analysis?

7. The location and the number of colonization cites of MDR AB deserved a statistical analysis for their interactions with subsequent AB bacteremia, esp. for the mention of airway AB colonization in the Discussion by the authors.

8. The authors confessed that there are several limitations in the study, but only one issue was discussed. Basically, the mentioned one is inherently methodological weakness of a retrospective study. Other issues should be concerned in the Discussion.

Discretionary Revisions: None

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests