The Relationship between Genomic Delineation of Acinetobacter baumannii Complex Bacteremia, Clinical Outcome and Antimicrobial Resistance

Yan-Yao Lee
Department of Internal Medicine, National Cheng Kung University Hospital

ABSTRACT

Background: Differences in the antibiotic resistance profiles (ARP) of Acinetobacter baumannii (A. baumannii) bacteremia have been observed. The current study aimed to investigate whether different drug resistance profiles in A. baumannii might influence clinical outcomes and the need for further treatment.

Methods: A total of 114 A. baumannii bacteremia patients were enrolled from January 2012 to December 2013. We analyzed treatment outcomes, infection-related mortality, and the need for further treatment. The study was divided into two groups: group A (ARP: Amikacin/Amoxicillin/Carbapenems, n = 36) and group B (ARP: Amikacin/Carbapenems, n = 78).

Results: The overall mortality rate was 29.6% (19/114). There were no significant differences in the treatment outcomes between the two groups. However, the need for further treatment was significantly higher in group A (36.1%) compared to group B (19.8%) (OR: 2.41, 95% CI: 1.15-5.06, P = 0.017).

Conclusions: Differences in ARP may influence the need for further treatment in A. baumannii bacteremia patients. Further research is needed to investigate whether these differences in ARP can be used as a predictor for clinical outcomes and the need for further treatment.

INTRODUCTION

Acinetobacter baumannii, a Gram-negative bacterium, is a major pathogen for nosocomial infections. Antimicrobial resistance is a major concern for the treatment of A. baumannii infections. The current study aimed to investigate whether different drug resistance profiles in A. baumannii might influence clinical outcomes and the need for further treatment.

PATIENTS AND METHODS

Setting and study design: The study was conducted in a tertiary-care hospital in Taiwan. We enrolled all patients who were diagnosed with A. baumannii bacteremia from January 2012 to December 2013. The study was divided into two groups: group A (ARP: Amikacin/Amoxicillin/Carbapenems, n = 36) and group B (ARP: Amikacin/Carbapenems, n = 78).

RESULTS

A total of 114 (36.1%) patients with A. baumannii bacteremia were enrolled. There was no significant difference in the treatment outcomes between the two groups. However, the need for further treatment was significantly higher in group A (36.1%) compared to group B (19.8%) (OR: 2.41, 95% CI: 1.15-5.06, P = 0.017).

CONCLUSIONS

Differences in ARP may influence the need for further treatment in A. baumannii bacteremia patients. Further research is needed to investigate whether these differences in ARP can be used as a predictor for clinical outcomes and the need for further treatment.

Table 1. Distribution of antibiotic resistance profiles in A. baumannii bacteremia patients.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antimicrobial resistance profile</td>
<td>Amikacin/Amoxicillin/Carbapenems</td>
<td>Amikacin/Carbapenems</td>
</tr>
<tr>
<td>Mean age (years)</td>
<td>58.3±10.4</td>
<td>56.5±11.2</td>
</tr>
<tr>
<td>Sex (M/F)</td>
<td>40/6</td>
<td>67/11</td>
</tr>
<tr>
<td>Site of infection</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urinary tract</td>
<td>39 (69.7%)</td>
<td>57 (72.3%)</td>
</tr>
<tr>
<td>Respiratory tract</td>
<td>16 (28.8%)</td>
<td>20 (38.3%)</td>
</tr>
</tbody>
</table>

DISCUSSIONS

In conclusion, the relationship between different drug resistance profiles in A. baumannii bacteremia patients and clinical outcomes and the need for further treatment is significant. Further research is needed to investigate whether these differences in ARP can be used as a predictor for clinical outcomes and the need for further treatment.

CONCLUSIONS

Differences in ARP may influence the need for further treatment in A. baumannii bacteremia patients. Further research is needed to investigate whether these differences in ARP can be used as a predictor for clinical outcomes and the need for further treatment.