Methicillin-Resistant Staphylococcus aureus Nosocomial Pneumonia

To the Editor:

With regard to the article by Walkey et al in CHEST (May 2011), we would like to inform you that there was an additional study presented at a late-breaking session at the 48th Annual Meeting of the Infectious Diseases Society of America in October 2010, and it was just published in a journal in March 2012.² It was a randomized, double-blind, multicenter trial that compared the efficacy and safety of linezolid with that of vancomycin in adults who had nosocomial pneumonia due to culture-proven methicillin-resistant Staphylococcus aureus (MRSA).

A total of 1,184 subjects were randomized and received linezolid (600 mg every 12 h) or vancomycin (15 mg/kg every 12 h) for 7 to 14 days. The groups were comparable in terms of demographics and other clinical parameters. The patients with culture-proven MRSA pneumonia were those who had a quantitative culture of MRSA ≥ 10⁶ colony-forming units/mL of BAL or ≥ 10⁴ colony-forming units/mL of protected specimen brush sample. The clinical success rates in the subjects with proven MRSA pneumonia at the end of the study were 95 of 165 (57.6%) for the linezolid group and 81 of 174 (46.6%) for the vancomycin group.

If the aforementioned study is included in the meta-analysis, as shown in Figure 1, the relative risk of clinical success of the patients who received linezolid will become 1.23 (95% CI, 1.06-1.45; P = .009). Therefore, linezolid is statistically more effective than vancomycin for the treatment of proven MRSA nosocomial pneumonia. It should be kept in mind, however, that linezolid must be prescribed to patients with suspected MRSA nosocomial pneumonia, and only 30% to 40% of patients suspected of having MRSA pneumonia actually have proven MRSA pneumonia. Moreover, although the pooled estimate of a difference in efficacy of linezolid over vancomycin from our meta-analysis is 10.8%, the 95% CI of such a difference is 3.2% to 18.5%. Therefore, a cost-effectiveness analysis should be performed to determine if linezolid is efficient for empirical therapy of suspected MRSA nosocomial pneumonia and for specific therapy of proven MRSA nosocomial pneumonia.

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REFERENCES


For the Table of Clinical Success at Test of Cure:

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th># success / total</th>
<th>Random Effect Risk ratio (95% CI) Linezolid</th>
<th>Risk Ratio (95% CI) Glycopeptide</th>
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</thead>
<tbody>
<tr>
<td>Clinical Success at Test of Cure</td>
<td></td>
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<tr>
<td>Stevens et al. 2002</td>
<td>12 / 23</td>
<td>14 / 26</td>
<td>0.97 [0.57; 1.64]</td>
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<tr>
<td>Wunderink et al. 2003</td>
<td>36 / 61</td>
<td>22 / 62</td>
<td>1.68 [1.12; 2.47]</td>
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<tr>
<td>Cepeda et al. 2004</td>
<td>9 / 17</td>
<td>5 / 16</td>
<td>0.94 [0.50; 1.75]</td>
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<tr>
<td>Kohno et al. 2007</td>
<td>11 / 34</td>
<td>6 / 19</td>
<td>1.02 [0.45; 2.33]</td>
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<tr>
<td>Wunderink et al. 2008</td>
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<td>9 / 19</td>
<td>1.19 [0.66; 2.16]</td>
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<tr>
<td>Wunderink et al. 2012</td>
<td>95 / 165</td>
<td>81 / 174</td>
<td>1.24 [1.01; 1.52]</td>
</tr>
<tr>
<td>Total, Clinical Success, MRSA</td>
<td>176 / 323</td>
<td>141 / 316</td>
<td>1.23 [1.06; 1.45]</td>
</tr>
</tbody>
</table>

Heterogeneity X² = 3.93 p = 0.560 I² = 0 %

Test for overall effect p = 0.009

Relative Risk

0.75 1 1.5

Figure 1. Forest plot of clinical success in subjects with culture-positive MRSA pneumonia. MRSA = methicillin-resistant Staphylococcus aureus.²⁷

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conflicts of interest exist with any companies/organizations whose products or services may be discussed in this article.

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REFERENCES


