Revised Reference Broth Microdilution Method for Testing Telavancin: Effect on MIC Results and Correlation with Other Testing Methodologies

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ABSTRACT

The antimicrobial susceptibility testing for these lipoglycopeptide agents were revised, and updated MIC values obtained by the revised BMD method were considered as reference results. Initially, Gram-positive clinical strains collected during previous worldwide surveillance programs were included. A total of 462 clinical isolates were included in this study. This method consists of the use of dimethyl sulfoxide (DMSO) as solvent for stock solution. These changes were shown to improve the drug solubility during panel preparation (DMSO for stock solutions). Among candidate dry-form panels tested, one formulation had highest overall EA rates (98.7%). Differences in MIC results between frozen-form BMD methods were less significant for the American Type Culture Collection (ATCC) strains using revised method, the previous method, and a newly developed dry-form panel formulation. Telavancin MIC ranges when tested against American Type Culture Collection (ATCC) strains using a revised method, the previous method, and a newly developed dry-form panel formulation were within ± one log 2 dilution step when compared to the revised method were considered as reference results.

INTRODUCTION

Antimicrobial susceptibility testing panels (ASTP) are used both as standalone susceptibility testing panels, or as part of the inoculum for BMD assays to aid in the determination of minimum inhibitory concentration (MIC) values. These changes were shown to improve the drug solubility during panel preparation (DMSO for stock solutions). Among candidate dry-form panels tested, one formulation had highest overall EA rates (98.7%). Differences in MIC results between frozen-form BMD methods were less significant for the American Type Culture Collection (ATCC) strains using revised method, the previous method, and a newly developed dry-form panel formulation. Telavancin MIC ranges when tested against American Type Culture Collection (ATCC) strains using a revised method, the previous method, and a newly developed dry-form panel formulation were within ± one log 2 dilution step when compared to the revised method were considered as reference results.

MATERIALS AND METHODS

A total of 462 clinical isolates were included in this study. These changes were shown to improve the drug solubility during panel preparation (DMSO for stock solutions). Among candidate dry-form panels tested, one formulation had highest overall EA rates (98.7%). Differences in MIC results between frozen-form BMD methods were less significant for the American Type Culture Collection (ATCC) strains using revised method, the previous method, and a newly developed dry-form panel formulation. Telavancin MIC ranges when tested against American Type Culture Collection (ATCC) strains using a revised method, the previous method, and a newly developed dry-form panel formulation were within ± one log 2 dilution step when compared to the revised method were considered as reference results.

RESULTS

CTRSA 2016.01

<table>
<thead>
<tr>
<th>Method</th>
<th>MIC 50 (µg/mL)</th>
<th>% EA ≥90%</th>
<th>% EA ≥99%</th>
<th>% EA ≥100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised</td>
<td>0.015-0.06</td>
<td>99.0</td>
<td>99.0</td>
<td>99.0</td>
</tr>
<tr>
<td>Previous</td>
<td>0.03-0.12</td>
<td>99.0</td>
<td>99.0</td>
<td>99.0</td>
</tr>
</tbody>
</table>

CONCLUSIONS

The revised BMD method was shown to improve the drug solubility during panel preparation (DMSO for stock solutions). Among candidate dry-form panels tested, one formulation had highest overall EA rates (98.7%). Differences in MIC results between frozen-form BMD methods were less significant for the American Type Culture Collection (ATCC) strains using revised method, the previous method, and a newly developed dry-form panel formulation. Telavancin MIC ranges when tested against American Type Culture Collection (ATCC) strains using a revised method, the previous method, and a newly developed dry-form panel formulation were within ± one log 2 dilution step when compared to the revised method were considered as reference results.

REFERENCES


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The research and publication processes are supported by ThermoFisher, Inc. Thanks to developers who supported by ThermoFisher, Inc. and anonymous reviewers who contributed to significantly improve the accuracy and completeness of the manuscript. The authors declare no conflicts of interest.