Evaluation of Ceftolozane-Tazobactam MIC Test Strip Compared to Broth Microdilution MIC for Enterobacteriaceae and Pseudomonas aeruginosa

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Methods

Ceftolozane-Tazobactam (C-T) is a combination antimicrobial agent that was approved by the Food and Drug Administration (FDA) for treatment of complicated urinary tract infections (cUTI), including pyelonephritis and, in combination with meropenem, for the treatment of complicated intra-abdominal infections (cIAI).

The study was performed to evaluate the performance of a newly developed gradient strip, the ceftolozane-tazobactam MTS (MTS-BMD) from Liofilchem, Roseto degli Abruzzi, Italy.

**Organism**

<table>
<thead>
<tr>
<th>Organism</th>
<th>Total n</th>
<th>C-T MIC results (µg/mL)</th>
<th>C-T BMD MIC results (µg/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. coli ATCC 25922</td>
<td>53</td>
<td>≤0.016</td>
<td>≤0.03</td>
</tr>
<tr>
<td>P. aeruginosa ATCC 27857</td>
<td>53</td>
<td>≤0.016</td>
<td>≤0.03</td>
</tr>
</tbody>
</table>

**Results**

*Quality Control (Table 1):* Ceftolozane-MTS MIC results for all 4 QC strains were within the GLS expected ranges with exception of 1 result for E. coli ATCC 25862 on Hardy MHA. Enterobacteriaceae (Figure 1): Ceftolozane-tazobactam MIC results were within +/- one doubling dilution for 47/50 isolates. For E. coli, C-T MIC results were lower than the BMD MIC. Category agreement was 94% (14% minor errors and 5.6% very major errors attributed to 1 isolate).

**Conclusions**

- The ceftolozane-tazobactam MTS against Enterobacteriaceae and P. aeruginosa performed similar to BMD testing.
- With exception of 2 strains with lower MTS MICs, there was a tendency for higher MTS MIC results compared to BMD MIC results for *P. aeruginosa*.
- Additional testing with more isolates, at multiple sites and with multiple MHA is recommended for further validation.

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