Ceftaroline Activity Tested Against Pathogens Associated With Acute Bacterial Skin and Skin-Structure Infections (ABSSSI) Isolated From Latin American Medical Centers (2010)

DJ BIEDENBACH, HS SADER, RK FLANN, RN JONES
JMI Laboratories, North Liberty, Iowa, USA

Conclusions
• Ceftaroline was active against 84% of isolates, with superior in vitro activity against E. coli, P. aeruginosa, and other Gram-negative bacilli compared to other β-lactams against MRSA (at all inhibited at ≤0.5 μg/ml) and its efficacy and tolerability were similar to that of ceftazidime and ceftriaxone.
• Ceftaroline was highly active against β-hemolytic streptococci (MIC≤0.008–0.015 μg/ml) and its efficacy and tolerability were similar to that of ceftriaxone and cefotaxime against MSSA.
• In summary, ceftaroline demonstrated potent in vitro activity against pathogens associated with ABSSSI collected from Latin American hospitals in 2010.

Acknowledgements
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Introduction
Ceftaroline, the active metabolite of the produg ceftaroline fosamil, is a cephalosporin with activity against Gram-positive cocci, including methicillin-resistant S. aureus (MRSA) and Enterococcus species. The produg, ceftaroline fosamil is approved by the FDA for treatment of ABSSSI.

Methods
15 sites (5 countries) in 2010 contributed clinical isolates which were susceptible tested using validated both microdilution panels. Species associated with ABSSSI included S. aureus (1,259), A. baumannii (699), E. coli (370), and viridans group streptococci. Susceptibility data were obtained from the Clinical and Laboratory Standards Institute (CLSI) and EUCAST (2012). USA-FDA interpretive criteria for ceftaroline susceptibility were used.

Results
• Ceftaroline was highly active against S. aureus (MIC<0.008 μg/ml), with values ranging from 0.25 to 2 μg/ml (MIC50, 1 μg/ml and MIC90, 2 μg/ml). Among non-ESBL strains, 95.9% of strains were inhibited at a ceftaroline MIC of only ≤0.25 μg/ml (Table 1).
• Against MRSA, ceftaroline MIC values ranged from 0.25 to 2 μg/ml (MIC50, 1 μg/ml and MIC90, 0.015 μg/ml), and 89.5% of strains were inhibited at a ceftaroline MIC of only ≤0.015 μg/ml (Table 1). Ceftaroline activity was comparable to that of imipenem, ceftriaxone and cefotaxime (MIC≤0.03 μg/ml). Among ß-hemolytic streptococci was only 0.03 μg/ml (Table 1 and 2).
• Ceftaroline was very potent against β-hemolytic streptococci. S. pyogenes strains (MIC≤0.008 μg/ml) were slightly more susceptible to ceftaroline than S. agalactiae strains (MIC≤0.015 μg/ml). Among ß-hemolytic streptococci the highest ceftaroline MIC was only 0.03 μg/ml (Table 1 and 2).
• Ceftaroline was very potent against β-hemolytic streptococci. S. pneumoniae strains (MIC≤0.015 μg/ml) were slightly more susceptible to cephalosporins than ceftriaxone and ceftazidime. Among non-ESBL strains, 98.5% and 99.6% of strains were inhibited at ceftaroline MIC of ≤0.03 and ≤0.015 μg/ml, respectively (Table 1 and 2). E. coli isolates were generally susceptible to ceftaroline (MIC≤0.12 μg/ml). Among non-ESBL strains, 93.0% and 96.5% of strains were inhibited at a ceftaroline MIC of ≤0.03 and ≤0.015 μg/ml, respectively (Table 1 and 2). E. coli strains and cephalosporin MICs were only slightly less susceptible to ceftaroline (MIC≤0.32≤0.32 μg/ml and ≤0.06≤0.06 μg/ml). The highest ceftaroline MIC was ≤0.015 ≤0.015 μg/ml (Table 1 and 2). E. coli isolates were generally susceptible to ceftaroline (MIC≤0.12 μg/ml). Among non-ESBL strains, 93.0% and 96.5% of strains were inhibited at a ceftaroline MIC of ≤0.03 and ≤0.015 μg/ml, respectively (Table 1 and 2). E. coli strains and cephalosporin MICs were only slightly less susceptible to ceftaroline (MIC≤0.32≤0.32 μg/ml and ≤0.06≤0.06 μg/ml). The highest ceftaroline MIC was ≤0.015 ≤0.015 μg/ml (Table 1 and 2).

Table 1. Summary of Cefaroline Activity Tested Against Pathogens Associated With Acute Bacterial Skin and Skin-Structure Infections (ABSSSI) Isolated From Latin American Medical Centers (2010)

<table>
<thead>
<tr>
<th>Pathogen</th>
<th>MIC90 (μg/ml)</th>
<th>MIC50 (μg/ml)</th>
<th>US-FDA</th>
<th>CLSI</th>
<th>EUCAST</th>
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</thead>
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<tr>
<td>MSSA</td>
<td>0.25</td>
<td>0.25</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>E. coli</td>
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<tr>
<td>S. pyogenes</td>
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<td>0.008</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>S. pneumoniae</td>
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<td>100</td>
<td>100</td>
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</tbody>
</table>

Table 2. Summary of Cefaroline Activity Tested Against Pathogens Associated With Acute Bacterial Skin and Skin-Structure Infections (ABSSSI) Isolated From Latin American Medical Centers (2010)

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</tr>
</thead>
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