Clinical Outcomes Associated with Oral β-lactams versus Fluoroquinolones/TMP-SMX
Therapy for Gram-Negative Bacteremia

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BACKGROUND
• Agents commonly used as oral step-down therapy in Enterobacteriaceae bacteremia include fluoroquinolones and TMP-SMX
• The use of these oral step-down agents have been associated with safety concerns and increased resistance rates
• Oral β-lactams are usually not recommended to treat Enterobacteriaceae bacteremia because of concerns for sub therapeutic serum concentrations
• Given the limited data on clinical effectiveness and increased limitations with fluoroquinolones or TMP-SMX, oral β-lactams may be a valuable alternative option

OBJECTIVE
To evaluate the clinical effectiveness in patients transitioned to oral beta-lactams versus oral fluoroquinolone or TMP for the step-down treatment of uncomplicated gram-negative bacteremia

METHODS
A multi-center retrospective observational cohort study was conducted from July 1, 2017 to December 31, 2020 at 31 Memorial Hermann Health System Hospitals

790 patients assessed for eligibility

Patients were excluded for the following reasons
• Polymicrobial bacteremia
• Previous bacteremia in the 90 days before blood culture collection
• Not transitioned to PO antibiotics
• ESRD
• Admitted for observation ≤ 2 day
• Source control not achieved
• Enrolled in hospice at admission

690 patients included in the Propensity Score Matching 1:1
• β-lactams
• FQN & TMP-SMX, n=199

Results

Table 1. Baseline Characteristics

<table>
<thead>
<tr>
<th>Age, median (IQR)</th>
<th>71 (58-79)</th>
<th>70 (60-75)</th>
<th>0.016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, Female (%)</td>
<td>122 (81)</td>
<td>122 (81)</td>
<td>1.00</td>
</tr>
<tr>
<td>BW/30 kg/m²</td>
<td>101 (51)</td>
<td>109 (55)</td>
<td>0.42</td>
</tr>
<tr>
<td>Race</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>67 (45)</td>
<td>77 (50)</td>
<td>--</td>
</tr>
<tr>
<td>African American</td>
<td>38 (25)</td>
<td>38 (25)</td>
<td>--</td>
</tr>
<tr>
<td>Unknown or other</td>
<td>15 (10)</td>
<td>15 (10)</td>
<td>--</td>
</tr>
<tr>
<td>Beta-lactam allergy, n (%)</td>
<td>36 (18)</td>
<td>30 (15)</td>
<td>0.413</td>
</tr>
</tbody>
</table>

Primary Source
• VAP
• IUC
• Intra-abdominal
• Respiratory
• Other

ESR values achieved in 90 days before

<table>
<thead>
<tr>
<th>ESR</th>
<th>21 (11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median (14)</td>
<td>13 (7)</td>
</tr>
<tr>
<td>(IQR)</td>
<td>(4)</td>
</tr>
</tbody>
</table>

Complicated infection defined as the following:
• PITT bacteremia score, median (IQR)
• Total PO antibiotic duration, median, days
• Other Beta-lactams
• Transition to IV antibiotics after initiating PO therapy
• 1 day mortality with oral step-down therapy
• Treatment Failure within 30 days

Objectives
• Composite Primary Outcome
• Secondary Outcomes

CONCLUSIONS
• Based on the results of this study, no significant difference in treatment failure was seen in patients who were transitioned to β-lactams vs fluoroquinolones or TMP-SMX as PO step-down therapy for uncomplicated Enterobacteriaceae bacteremia
• Oral β-lactams appear to be a safe and effective PO step-down option in uncomplicated Enterobacteriaceae bacteremia infections compared to oral fluoroquinolones & TMP-SMX

REFERENCES

DISCLOSURES
Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.