Oral β-lactam antibiotics can be considered as a suitable alternative treatment for gram-negative bacteremia from a urine source, following initial treatment with intravenous antibiotics. There has been controversy of cefdinir’s use in gram-negative infections due to its low bioavailability. Estimated bioavailability of cefdinir capsules is 21% following administration of a 300 mg capsule dose.

To explore whether cefdinir is an appropriate alternative antibiotic agent in gram-negative bloodstream infections who meet criteria for oral antibiotic step-down therapy as compared to other oral antibiotics.

Study Design:
- Single-center, retrospective chart review
- IRB approval obtained
- Data collected performed through electronic medical records, and protected health information was separate from data collection sheet

Inclusion Criteria:
- Ages ≥ 18 with first episode of gram-negative bloodstream infection
- 1 or more gram-negative blood cultures between January 2018 to October 2023
- Uncomplicated gram-negative bacteremia
- Received oral antibiotic therapy

Exclusion Criteria:
- Intravenous (IV) therapy for more than 7 days
- Blood cultures containing Pseudomonas spp., Sphingomonas spp., atypical organisms, anaerobes, or polymicrobial blood cultures with gram-positive organisms

Outcomes:
- Primary Endpoints:
  - 30-day all-cause mortality
  - 30-day recurrence of bacteremia
- Secondary Endpoints:
  - Length of stay
  - Length of antibiotic therapy (oral and intravenous therapy)
  - 90-day development of Clostridioides difficile infection

Study Analysis:
- Descriptive statistics, Fisher’s exact test, and t-test

IV Antibiotics

<table>
<thead>
<tr>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefdinir</td>
<td>213 (58.2%)</td>
</tr>
<tr>
<td>Other Oral Antibiotics</td>
<td>51 (23.9%)</td>
</tr>
</tbody>
</table>

Table 3. Group Characteristics (n=366)

- Ages ≥ 18 with first episode of gram-negative bloodstream infection
- 1 or more gram-negative blood cultures between January 2018 to October 2023
- Uncomplicated gram-negative bacteremia
- Received oral antibiotic therapy

- Single-centered, retrospective design
- Unable to guarantee antibiotic adherence
- 90-day development of Clostridioides difficile infection could be a result of IV antibiotic therapy.
- Inappropriate dosing for IV antibiotics and oral antibiotics could skew results.
- Patients were given IV therapy up to 7 days which can be argued that this alone is enough to treat gram-negative bacteremia.

Cefdinir, despite its low bioavailability, has demonstrated comparable effectiveness to other oral antibiotics in the treatment of gram-negative bacteremia. While cefdinir has a relatively low bioavailability, this study shows that it can still effectively treat gram-negative bacteremia. This is likely due to factors such as the drug’s mechanism of action, ability to penetrate infected tissues, and its overall pharmacokinetic profile.

It is important to note that the choice of antibiotic should be determined based on individual patient factors, such as the severity of the infection, the causative pathogen, and the source of the infection.

2. OmwezaA (edilinave) WIKI 50-739: U.S. Food and Drug Administration.