3.8: Monobactams

Like penicillins, cephalosporins, and carbapenems, monobactams also have a beta-lactam ring structure.

**Indications:** Monobactams are narrow-spectrum antibacterial medications that are used primarily to treat gram-negative bacteria such as *Pseudomonas aeruginosa*.

**Mechanism of Action:** Monobactams are bactericidal and work to inhibit bacterial cell wall synthesis.\(^1\)

**Specific Administration Considerations:** Patients taking monobactams may experience adverse effects similar to other beta-lactam medications, so nurses should monitor for GI symptoms, skin sensitivities, and coagulation abnormalities.

**Patient Teaching & Education:** Patients should monitor for signs of superinfection and report any occurrence to the provider. If the patient experiences fever and bloody diarrhea, they should contact the provider immediately. The patient should also be advised to notify the provider immediately if symptoms progress or if any sign of allergic response occurs.\(^2\)

Now let's take a closer look at the medication grid for aztreonam in Table 3.8.\(^3\)

<table>
<thead>
<tr>
<th>Class/Subclass</th>
<th>Prototype/Generic</th>
<th>Administration Considerations</th>
<th>Therapeutic Effects</th>
<th>Side/Adverse Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monobactams</td>
<td>aztreonam</td>
<td>Check for allergies to any beta lactams – penicillin, cephalosporins, or carbapenems</td>
<td>Monitor for systemic signs of infection:</td>
<td>Similar to cephalosporins</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Can be administered IM, IV, or via</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Updated: Fri, 23 Sep 2022 03:36:03 GMT

\(^2\) Powered by
Critical Thinking Activity 3.8a

Using the above grid information, consider the following clinical scenario question:

A patient with cystic fibrosis is diagnosed with ventilator-associated pneumonia and is prescribed Aztreonam 1 gm IV daily for a suspected Pseudomonas aeruginosa infection. The nurse reviews the culture results that just arrived and notices that the results indicate the infection is caused by Methicillin-resistant Staphylococcus aureus. Will this medication be effective against this bacteria? What is the nurse’s next best response?

Note: Answers to the Critical Thinking activities can be found in the “Answer Key” sections at the end of the book.

1. This work is a derivative of Microbiology by OpenStax licensed under CC BY 4.0. Access for free at https://openstax.org/books/microbiology/pages/1-introduction.