Nocardia cyriacigeorgica Endocarditis

Background

- Nocardia are beaded, branching gram-positive rods that are partially acid fast and usually slow growing.
- Nocardia cyriacigeorgica was first described in 2001.
- Nocardia species are not commonly associated with endocarditis; less than 20 cases to date have been documented.
- The mortality with Nocardia endocarditis has been reported to be as high as 41%.

Case Presentation

- History of Present Illness:
  - A 62-year-old male presented to the ED via EMS with worsening shortness of breath (SOB) for one week. Patient wears 8L of nasal canula at home. ED vital signs were significant for a pulse of 102 and Tmax of 100.6°F.
- Past Medical History:
  - Severe Chronic Obstructive Pulmonary Disease (COPD), atrial fibrillation, atrial tachyarrhythmia, alcoholism, and Congestive Heart Failure (CHF)
- Initial Treatment:
  - Diltiazem, meropenem, and eventually intubation
- Cultures:
  - Day two blood cultures grew gram positive rods, which were eventually identified as aerobic Actinomycete. Culture was sent out for DNA sequencing and N. cyriacigeorgica was identified.

Antimicrobial MIC Interpretation

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>MIC</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amikacin</td>
<td>&lt;1</td>
<td>Susceptible</td>
</tr>
<tr>
<td>Ceftriazone</td>
<td>&lt;4</td>
<td>Susceptible</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>&gt;8</td>
<td>Resistant</td>
</tr>
<tr>
<td>Imipenem</td>
<td>8</td>
<td>Intermediate</td>
</tr>
<tr>
<td>Linezolid</td>
<td>2</td>
<td>Susceptible</td>
</tr>
<tr>
<td>Moxifloxacin</td>
<td>4</td>
<td>Resistant</td>
</tr>
<tr>
<td>Tobramycin</td>
<td>&lt;1</td>
<td>Susceptible</td>
</tr>
<tr>
<td>Trimethoprim/Sulfamethoxazole</td>
<td>0.5/9.5</td>
<td>Susceptible</td>
</tr>
</tbody>
</table>

Therapy:

- Empiric: Meropenem 1g q 6h (Days 1-4), Ampicillin 3g q 6h (Days 4-9)
- Culture Directed: Ceftriaxone 2g q 24h (Initiated on day 5)
- Discharge: Ceftriaxone 2g q 24h x 3 weeks, and six months of suppressive therapy with minocycline 100mg PO q12h.

- Discharge:
  - Blood cultures were negative, however patient was lost to follow up and therapy was not completed.

Hospital Course

- Post Discharge: 8 days: Readmitted with SOB and intoxication; length of stay (LOS) was 2 days. Blood cultures not done during admission.
- 10 days: Readmitted with SOB, intoxication, status post fall; LOS was 4 days. Blood cultures were negative on admission.
- 29 days: Readmitted for SOB, and found to have N. cyriacigeorgica bacteremia and a pulmonary embolism. During his hospital stay the patient had a STEMI, but due to multiple comorbidities was unable to undergo cardiac catheterization. The family elected to withdrawal care, and the patient expired.

Discussion

- N. cyriacigeorgica is more commonly identified in brain abscesses or skin infections, in the setting of immunosuppression. We report here on an unusual case of N. cyriacigeorgica endocarditis in a patient with COPD. Other than COPD the patient had no known risk factors for N. cyriacigeorgica, including chronic steroid use which one would suspect with a history of COPD.

References


Disclosures

Authors of this presentation have the following 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:

- Nikhil Bhayani, MD, FIDSA: Nothing to disclose
- Jaclyn Priest, PharmD: Nothing to disclose
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- Neal Simon, PharmD Candidate: Nothing to disclose

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