Alternative Antibiotic Prescribing for Community-Acquired Pneumonia (CAP) in Children in Relation to Allergy Status

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Background

- Amoxicillin is the recommended first-line therapy for healthy children with CAP
- While 10% of the population may report a penicillin allergy, >90% of these patients are not allergic and may still safely receive penicillin
- Inaccurate reporting of a penicillin allergy may lead to prescription of other non-B-lactam or broader spectrum antibiotics
- Inpatients with reported antibiotic allergy status have been shown to have inappropriate antibiotic prescribing, increase antimicrobial resistance, and suboptimal patient outcomes

Objective

To determine the prevalence and management of children with reported antibiotic allergy with a diagnosis of CAP, inpatient and outpatient, across 6 children's hospitals in Ohio.

Methods

- The Children’s Hospital’s Initiative for Research in Pneumonia (CHIRP) study enrolled inpatient and outpatient previously healthy children ≥2 months to 18 years of age with a diagnosis of CAP from six participating sites.
- Demographic data, allergy status, antimicrobial therapy, and clinical outcomes were collected.
- Overall prevalence of reported antibiotic allergy and alternative therapy used in setting of reported allergy were analyzed.

Results

- 470 subjects enrolled from October 2015 to December 2017 were included in analysis.
- The median age was 6.3 yrs (range: 3 mth to 18.9 yr)
- 45% were females
- 63/470 (13.4%) subjects self-reported one or more antibiotic allergies:

<table>
<thead>
<tr>
<th>Allergy</th>
<th>Number of Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin</td>
<td>41</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>17</td>
</tr>
<tr>
<td>Ceftaroline</td>
<td>7</td>
</tr>
<tr>
<td>Retapamulin</td>
<td>4</td>
</tr>
<tr>
<td>Meropenem</td>
<td>5</td>
</tr>
<tr>
<td>Vancomycin</td>
<td>4</td>
</tr>
<tr>
<td>Linezolid</td>
<td>3</td>
</tr>
</tbody>
</table>

- Of the 58 subjects with B-lactam allergy:
  - 44/58 (76%) were treated with ceftriaxone
  - 6 (10.3%) were prescribed amoxicillin at discharge
- Of the 3 subjects with reported levofloxacin allergy, 2 were treated with levofloxacin during hospitalization for CAP as well as at the time of discharge.

Conclusion

- Most subjects with reported B-lactam allergy were treated with alternative and broader spectrum antibiotics.
- 10.3% with reported B-lactam allergy still received amoxicillin at discharge

Future Directions

- Providers should be educated to accurately confirm allergy history to guide appropriate antimicrobial therapy
- Reliable methods for allergy confirmation in children should be utilized to improve prescribing behaviors

Acknowledgements

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References