Mycoplasma Pneumoniae: Scope of Infection in Pediatrics

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Objective

- To understand the clinical presentation and risk of escalation of care for pediatric patients diagnosed with Mycoplasma pneumoniae pneumonia (MPP) by respiratory viral panel (RVP).

Background

- MPP is classically associated with radiologic findings including bronchopneumonia and nodular infiltrate in school age children.
- The multiplex polymerase chain reaction (PCR) RVP test allows for rapid diagnosis of multiple viruses as well as treatable bacteria including MP, Bordetella Pertussis and Chlamydia pneumoniae.

Methods

- A retrospective study was performed of patients 0-18 years old who had positive MP RVP from January 1, 2013 to June 30, 2017.
- Clinical cases of patients hospitalized with positive MMP testing by RVP multiplex PCR were reviewed for clinical presentation, hospital course, demographic data, clinical course, radiological imaging and laboratory data. PCR was analyzed using BioFire FilmArray Multiplex PCR System
- All patients were analyzed for age, length of stay, chest x-ray (CXR) findings, available laboratory data and duration of fever/cough. (Table 1)

Results

- A total of 4,333 respiratory viral panels were tested during the three and a half year period; 73% of RVPs were performed on patients under 5 years of age; 49 were positive for MPP.
- In regards to age of patients, 27/49 (incidence 0.9%) positive for MPP were under 5 years old as compared to 22/49 (incidence 2.7%) between 5-18 years old.
- Younger patients were less likely to receive macrolide therapy.
- Pediatric ICU admission was required in 8/49 patients positive for mycoplasma. 4 were directly admitted to PICU and 4 were transferred to PICU.
- All four transfers were initially started on non-macrolide therapy and three of the four transferred were under 5 years of age.
- 3/15 (20%) of patients admitted with MPP under 5 started on non-macrolide therapy were subsequently transferred to PICU.

Conclusions

- Patients diagnosed by rapid molecular RVP with MPP were younger than classically expected.
- In our population, 20% of children under 5 years of age were started on non-macrolide therapy but had clinically severe MPP and were transferred to the PICU.
- Bilateral pulmonary infiltrates and new onset wheezing responsive to beta agonists were commonly noted in patients who had MPP.
- Earlier consideration of MPP as an infectious etiology should be considered in all patients, especially younger patients non-responsive to typical treatment of community acquired pneumonia in the presence of wheezing and bilateral pulmonary infiltrate.

References


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Table 1

<table>
<thead>
<tr>
<th>Clinical Features</th>
<th>Value</th>
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<tbody>
<tr>
<td>Cough (mean days PTA)</td>
<td>8.3 days</td>
</tr>
<tr>
<td>Fever (mean days PTA)</td>
<td>7.6 days</td>
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<tr>
<td>Patient Characteristics</td>
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<tr>
<td>Age MP positive patients</td>
<td>2.7 years</td>
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<tr>
<td>Age all RVP</td>
<td>1.4 years</td>
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<tr>
<td>Sex</td>
<td>41% females, 59% males</td>
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<tr>
<td>Scheduled albuterol</td>
<td>21/49 (43%)</td>
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<tr>
<td>Chest X-ray infiltrate</td>
<td>38/48 (79%)</td>
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<td>Bilateral infiltrate</td>
<td>30/38 (79%)</td>
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Table 3

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<th>Antibiotics Initiated on Admission n=49</th>
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<tr>
<td>Non-macrolide</td>
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<tr>
<td>Macrolide</td>
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<tr>
<td>Macrolide +</td>
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</table>

Figure 1

Age Distribution of Pediatric Patients with Positive Mycoplasma pneumoniae PCR (n=49)

Figure 2

Multiplex PCR Respiratory Viral Panel Testing

Figure 3

Antibiotics Started

Macrolide – Azithromycin
Non-macrolide – Ampicillin, ceftriaxone and/or vancomycin

PTA: prior to admission