Background

- Hospital-acquired pneumonia (HAP) and healthcare-associated pneumonia (HCAP) are leading causes of hospital-acquired infections.1,2
- Evidence suggests that HCAP risk factors do not accurately predict patient’s risk for MRSA.2,3
- Recently updated IDSA guideline for HAP recommends that therapy be tailored to patient-specific factors, local antimicrobial, and documented culture data.4
- Necessity vancomycin use can lead to increase in resistance and adverse effects such as nephrotoxicity.5
- First head-to-head trial assessing use of empiric vancomycin in non-critically ill HAP/HCAP population.

Methods

Objective

Assess outcomes of HAP/HCAP patients +/- empiric vancomycin in a non-critically ill population.

Study Design

- Multicenter, retrospective cohort study across 5 hospitals within Seton Family of Hospitals in Austin, TX between July 1, 2014 to June 30, 2016
- 276 patients were needed to detect 80% power assuming 80% clinical success rate.

Enrollment Criteria

- Patients identified via ICD 9/10 codes with pneumonia diagnosis
- Patients assigned to vancomycin vs. no vancomycin based on ≥ 72 hours of vancomycin treatment
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Inclusion

- Adults with HAP/HCAP diagnosis confirmed by infectious disease physician with radiographic evidence
- Intravenously antibiotics ≥ 72 hours

Exclusion

- Transferred or pregnant
- Required intubation/CPAP/BIPAP or death within 48 hours of admission
- Primary lung cancer, pulmonary abscess, empyema, or postobstructive pneumonia
- Patients with CF, documented TB, or chronic immunosuppression

Primary Endpoint

- Clinical Success: did not experience death; resolution of pneumonia symptoms
- No significant difference was observed in pneumonia severity score (p=0.12)

Secondary Endpoint

- Time to Clinical Stability: time in hours from start of IV antibiotic therapy until all the SIRS parameters normalized for 24 hours or transition to oral antibiotics

Safety

- Nephrotoxicity

Table 1: Study Populations

<table>
<thead>
<tr>
<th>Table 1: Study Populations</th>
<th>Vancomycin (n=174)</th>
<th>No Vancomycin (n=279)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), Median (IQR)</td>
<td>69.5 (70.9 - 84)</td>
<td>71.2 (72.6 - 84)</td>
<td>0.06</td>
</tr>
<tr>
<td>Male, N (%)</td>
<td>115 (65.8)</td>
<td>152 (54.4)</td>
<td></td>
</tr>
<tr>
<td>CCI, Median (IQR)</td>
<td>2 (1 - 3)</td>
<td>2 (1 - 3)</td>
<td>0.50</td>
</tr>
<tr>
<td>LPA, Median (IQR)</td>
<td>1 (1 - 2)</td>
<td>1 (1 - 2)</td>
<td>0.53</td>
</tr>
<tr>
<td>Supplemental Oxygen, N (%)</td>
<td>61 (35.1)</td>
<td>123 (70.7)</td>
<td>0.05</td>
</tr>
<tr>
<td>HCAP, N (%)</td>
<td>89 (84.5)</td>
<td>155 (88.1)</td>
<td>0.16</td>
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<tr>
<td>ICU, N (%)</td>
<td>16 (11.5)</td>
<td>19 (10.9)</td>
<td>0.30</td>
</tr>
</tbody>
</table>

Table 2: Patient Demographics

- N=721
- Seton Healthcare Family, Austin, TX
- N=279 charts reviewed
- Excluded N=272

Table 3: Duration of Pneumococcal Treatment

- N=279
- HAP: hospital-acquired pneumonia; HCAP: healthcare-associated pneumonia; IDSA: Infection Control Society of America; Sequential Failure Assessment
- *Of a total of 152 patients included in the propensity score matching analysis with similar difference observed in patients at lower risk of HAP/HCAP

Table 4: Secondary Endpoints

- N=721
- Excluding N=183
- Time to Clinical Stability: time in hours from start of IV antibiotic therapy until all the SIRS parameters normalized for 24 hours or transition to oral antibiotics

Table 5: Culture Data

- Positive Respiratory Cultures
- MRSA, N (%) | N=62 | N=76 |
- Antipseudomonal pneumonia, N (%) | 21 (33.8) | 5 (6.5) |
- Positive Non-Respiratory Cultures
- MRSA, N (%) | 2 (1.5) | 1 (1.3) |
- Additional Studies are needed to confirm results of the study

Conclusion

- No difference in clinical success was observed between empiric vancomycin and no vancomycin use in HAP/HCAP patient population
- Empiric vancomycin therapy may not be needed in non-critically ill HAP/HCAP population, and is consistent with new guidelines
- Additional studies are needed to confirm results of the study

Discourse

- The investigators have no financial conflict of interest to disclose

References