Background

- Antimicrobial regimen for methicillin-resistant Staphylococcus aureus (MRSA) coverage with antibiotics such as vancomycin are recommended for empiric use in the treatment of suspected MRSA (1-2)
- Nasal MRSA Polymerase Chain Reaction (PCR) assay has shown high negative predictive value for MRSA pneumonia
- Previous retrospective studies in the inpatient setting have demonstrated no difference in hospital mortality or decreased exposure to broad-spectrum antimicrobials (vancomycin) with MRSA PCR utilization for de-escalation of therapy(3-5)
- Early utilization of MRSA PCR by pharmacists in the ED will lead to early de-escalation or avoidance of vancomycin in patients with suspected pneumonia and MRSA risk factors

Objectives

Utilize MRSA PCR assay by pharmacist in the ED for early de-escalation or avoidance of vancomycin in patients with suspected pneumonia and MRSA risk factors

Methods

Design:
Single center, retrospective cohort study

Groups:
Control Group: Historical cohort, no pharmacist MRSA PCR intervention and received IV vancomycin
Intervention Group: Pharmacist initiated MRSA PCR assay

Inclusion Criteria:
- Patients presenting the Emergency Department between 8-1-2019 and 9-30-2020
- ≥ 18 years
- Radiographic diagnosis of pneumonia
- Patients with empiric vancomycin ordered

Exclusion Criteria:
- Currently on chemotherapy for malignancy or with neutropenic fever
- Patients with lung transplant or cystic fibrosis
- Prior positive MRSA in a blood, sputum culture, or suspected MRSA infection elsewhere
- Patients with concomitant empiric agents with MRSA activity (e.g., linezolid, ceftaroline)

Results

Number of patients who received one dose of Vancomycin prior to MRSA PCR Result

<table>
<thead>
<tr>
<th>Primary Endpoints:</th>
<th>Control (N=29)</th>
<th>Intervention (N=9)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs, m (IQR))</td>
<td>70 (61-82)</td>
<td>83 (65-87)</td>
<td>0.19</td>
</tr>
<tr>
<td>Sex (male), n (%)</td>
<td>15 (51.7)</td>
<td>3 (33.3)</td>
<td>0.33</td>
</tr>
<tr>
<td>History of cholecystectomy, n (%)</td>
<td>4 (13.8)</td>
<td>1 (11.1)</td>
<td>1.00</td>
</tr>
<tr>
<td>Hemodialysis at admission, n (%)</td>
<td>10 (34.5)</td>
<td>3 (33.3)</td>
<td>1.00</td>
</tr>
<tr>
<td>Sepsis in the ED, n (%)</td>
<td>9 (31.0)</td>
<td>4 (44.4)</td>
<td>1.00</td>
</tr>
<tr>
<td>Sepsis Shock in the ED, n (%)</td>
<td>4/4(44.4)</td>
<td>2/60</td>
<td>1.00</td>
</tr>
<tr>
<td>Indication for vancomycin, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAP</td>
<td>12 (8.5)</td>
<td>3 (60)</td>
<td>-</td>
</tr>
<tr>
<td>HCAP</td>
<td>1 (7.1)</td>
<td>1 (20)</td>
<td>-</td>
</tr>
<tr>
<td>HAP</td>
<td>0 (0)</td>
<td>1 (20)</td>
<td>-</td>
</tr>
<tr>
<td>VAP</td>
<td>1 (7.1)</td>
<td>0 (0)</td>
<td>-</td>
</tr>
</tbody>
</table>

Conclusions

- More patients in intervention group had empiric dose of vancomycin held prior to MRSA PCR result
- More patients in the control group had vancomycin levels drawn
- Data collection is currently ongoing, and results presented are preliminary data

References


Contact Information

sabrina.najibi@aah.org