Rapid identification of KPC carbapenemase on extensively drug-resistant bacterial colony in one Regional Teaching Hospital of Northern Taiwan.

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Purpose

1. Klebsiella pneumoniae carbapenemase (KPC)-producing Enterobacteriaceae bacteria are a group of emerging highly drug-resistant Gram-negative bacilli causing infections associated with significant morbidity and mortality. KPCs are an important mechanism of resistance for an increasingly wide range of Gram-negative bacteria and are no longer limited to K. pneumoniae.

2. KPC-producing bacteria are often resistance to the carbapenem antibiotic, Antimicrobial Agent phenotypic tests already exist for detection of carbapenemase but these tests are time-consuming and do not allow identification of KPC. Molecular identification tests need dedicated environment, skilled people and are expensive.

Material and Method

1. In this study, we used this Rapid diagnostic test (KPC K-SeT) method to detection of KPC on a single colony from a carbapenemase producing enterobacteriaceae (CPE).

2. For test, we used (KPC K-SeT) within 20 minutes. It is a kind of a method can quickly know the KPC results.

Clinical test data

<table>
<thead>
<tr>
<th>TOTAL No. XDRO</th>
<th>XDRO Name</th>
<th>XDRO species No.</th>
<th>KPC-producing (% of XDRO)</th>
<th>KPC K-SeT Positive (% of KPC-Producing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>K. pneumonia</td>
<td>56</td>
<td>31 (55.4%)</td>
<td>31 (100%)</td>
</tr>
<tr>
<td></td>
<td>E. coli</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>K. oxytoca</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Results

1. The result of this study was showed right.

2. When the result of drug sensitivity of Cefepime (FEP) and imipenem (IPM) are both Resistance, which is called When bacterial the drug sensitivity of Cefepime (FEP) and imipenem (IPM) are Resistance called Extensive Drug-Resistant Organism (XDRO).

Conclusion

1. Total 60 XDRO specimen collection including 56 K. pneumonia (72.2%), 3 E. coli (22.2%), and 1 K. oxytoca (5.5%).

2. In addition, Positive and Negative results of 60 XDRO, respectively 31 and 29.

3. We also found that all KPC positive for K. pneumoniae yielded. The Positive and Negative results, respectively 31(55.4%) and 25(44.6%). We think that might caused by an outbreak, statistic examination by patient showed that 31 XDRKP have KPC gene among totally 60 XDRAB.

4. Although that the test KPC K-SeT detects all strains producing KPC and any non-producing therefore sensitivity and specificity of 100% is all strains producing KPC and any non-producing therefore sensitivity and specificity of 100%. Future research is necessary to confirm these KPC gene results by PCR.

References


3. Coris KPC K-set product insert