Introduction:

Due to shrinking therapeutic options, infections due to Carbapenem resistant enterobacteriaceae (CRE) are of utmost importance in healthcare systems across the world. CRE phenotype is determined by a number of different genes, the metallo-beta-lactamases such as the NDM, and is relatively prevalent in the South Asian region. Data regarding infections with CRE caused by these strains is relatively limited.

Objectives:

1. A cross sectional study was carried out on 131 patients (65 having CRE and 66 having CSE bacteremia) who were infected by species with Carbapenem resistance. In all groups of organisms, mortality was higher in those patients with polymicrobial blood cultures and in patients with CSE. Patients with polymicrobial blood cultures were excluded. Clinical data of these patients was obtained using a structured performa.

2. Table 2: Multivariate Analysis

<table>
<thead>
<tr>
<th>Group / Variable</th>
<th>Odds ratio (95% CI)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRE</td>
<td>5.40 (4.35-20.42)</td>
<td>0.01</td>
</tr>
<tr>
<td>Negative culture</td>
<td>Yes</td>
<td>0.07 (0.51-0.29)</td>
</tr>
<tr>
<td>ICU stay</td>
<td>Yes</td>
<td>9.01 (5.52-54.04)</td>
</tr>
<tr>
<td>Central Venous Catheter</td>
<td>Yes</td>
<td>12.27 (2.34-61.09)</td>
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- The overall inpatient mortality in the CRE group was significantly higher than the CSE group with 45.8%.
- In terms of mortality amongst all the organisms, the number of deaths occurring in those infected by K. pneumonia, E. Coli, Enterobacter and P. mirabilis were 22 (32.3%), 10 (38.5%), 1 (16.7%) and 2 (50%) respectively.
- In all groups of organisms, mortality was higher in those patients who were infected by species with Carbapenem resistance.
- All 10 deaths occurring in patients infected by K. pneumonia had high P/B ratio (> 3).

Conclusion:

- CRE bacteremia caused by CRE is associated with higher mortality than that caused by CSE.
- Male gender, Diabetes Mellitus, surgery within past one year, admission to ICU and indwelling lines significantly increase the likelihood of bloodstream infection by CRE.
- The most common causative organism overall is E. Coli. However, Klebsiella pneumoniae is associated with highest proportion of CRE infections (81.8% p value 0.002).
- CRE bacteremia, placement of Central Line, negative blood culture prior to discharge and ICU admission are associated with poor inpatient outcomes for the patients.

References:

6. Dr. Syed Faisal Mahmood (Chairman, Department of Medicine, Aga Khan University Hospital, Karachi, Pakistan)

Results:

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Table 1: Patient Demographics

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Abstract

Introduction and Methodology

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