Mortality, Length of Stay and Bacterial Resistance of Device-Associated Infections in 107 Intensive Care Units of 19 Developing Countries. Findings of INICC

Author Block: V. D. ROSENTHAL,1 J. AIQIN,2 H. GUANCHE GARCELL,3 Y. HUSSAIN,4 S. ABUBAKAR,5 S. KANJ-SHARARA,6 F. E. UDWADIA7, D. ARMAN8, INICC Group;


Abstract:

Objective: To determine bacterial resistance, extra mortality (EM) and length of stay (LOS) of device-associated infections (DAI) in INICC ICUs.

Methods: Prospective cohort, active DAI surveillance was conducted on 107 adult, pediatric and neonatal ICUs of 47 cities in Argentina, Brazil, Chile, China, Colombia, Costa Rica, Cuba, India, Kosovo, Lebanon, Macedonia, Mexico, Morocco, Nigeria, Peru, Philippines, El Salvador, Turkey and Uruguay. CDC-NNIS definitions were applied. Protocol and forms were developed by INICC. Data were collected in the ICUs, and uploaded and analyzed at INICC offices.

Results: From 01/02 to 03/08, 45736 patients were enrolled.

<table>
<thead>
<tr>
<th>Agent</th>
<th>Overall DAI Percentage</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudomonas sp</td>
<td>19%</td>
<td>37% to Imipenem</td>
</tr>
<tr>
<td>Acinetobacter sp</td>
<td>15%</td>
<td>81% to piperaciline-tazobactam</td>
</tr>
<tr>
<td>S aureus</td>
<td>15%</td>
<td>81% to methicillin</td>
</tr>
<tr>
<td>Klebsiella sp</td>
<td>11%</td>
<td>69% to ceftazidime</td>
</tr>
<tr>
<td>E. Coli</td>
<td>9%</td>
<td>56% to ceftazidime</td>
</tr>
<tr>
<td>Coagulase-negative-staphylococci</td>
<td>6%</td>
<td>78% to methicillin</td>
</tr>
<tr>
<td>Enterobacter sp</td>
<td>5%</td>
<td>61% to ceftazidime; 7% to Imipenem</td>
</tr>
<tr>
<td>Enterococcus sp</td>
<td>3%</td>
<td>7% to vancomycin</td>
</tr>
</tbody>
</table>

Without DAI, 14.5% of patients died; with CLABSI 31%, (EM 16.5% (RR, 2.13.; 95% CI, 1.92 - 2.36; P, < 0.001)); with VAP 41.4%, (EM 26.9% (RR, 2.85; 95% CI, 2.62 - 3.09; P, < 0.001)); with CAUTI 36.2% (EM 21.7% (RR, 2.48; 95% CI, 2.19 - 2.82; P, < 0.001)).

Without DAI, LOS was 4.9 days; with CLABSI, 16.4 days (RR, 3.35) (11.5 extra days); with VAP, 15.2 days (RR, 3.10) (10.3 extra days); and with CAUTI, 13.9 days (RR, 2.83) (9 extra days).

Conclusions: This study found high bacterial resistance, and that DAI increased significantly LOS, and mortality.
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American Society for Microbiology
1752 N Street N.W
Washington, D.C. 20036
ICAAC Phone: (202) 737-3600

Infectious Diseases Society of America
1300 Wilson Blvd., Suite 300
Arlington, VA 22209
IDSA Phone: (703) 299-0200

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