A population study on provisions of care for patients with community-acquired sepsis

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Introduction

• Sepsis affects 48.9 million people and leads to 11 million deaths worldwide each year¹

• In Hong Kong, one in four of all adult deaths are attributable to sepsis²

• Longitudinal epidemiology, provisions of care and management of community-acquired sepsis (CAS) are poorly characterized

Question

What are the overall trends in provisions of care for hospitalized adult patients with CAS in Hong Kong from 2009 to 2018?

Objectives

a. Determine the compliance to basic sepsis investigations and resource utilization in terms of invasive organ support

b. Compare the use of broad-spectrum antibiotics (Big-gun) and antimicrobial resistance (AMR) prevalence

c. Assess the trends in provision of critical care and compare outcomes between patients in the ICU and general wards

Results

Table 1. Trends in investigations, provision of critical care, and mortality of CAS between 2009-2018 (N = 421,096)

<table>
<thead>
<tr>
<th>Investigation</th>
<th>2009, %</th>
<th>2018, %</th>
<th>Relative annual change [%] (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood culture ≥ 2</td>
<td>11.5</td>
<td>12.7</td>
<td>+1.2% [0.3%, 2.5%]</td>
<td>0.02</td>
</tr>
<tr>
<td>Lactate test</td>
<td>4.4</td>
<td>16.4</td>
<td>+15.3% [12.6%, 17.9%]</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>CT</td>
<td>18.6</td>
<td>31.7</td>
<td>+56.6% [42.7%, 70.5%]</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Vasopressor</td>
<td>6.4</td>
<td>13.3</td>
<td>+80.8% [63.1%, 113.1%]</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Mechanical Ventilation</td>
<td>16.0</td>
<td>10.4</td>
<td>-54.0% [6.9%, 40.4%]</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Renal Replacement Therapy</td>
<td>5.5</td>
<td>3.4</td>
<td>-34.0% [64.0%, -0.2%]</td>
<td>0.04</td>
</tr>
<tr>
<td>ICU Admission</td>
<td>41.2</td>
<td>34.0</td>
<td>-7.7% [-41.1%, -1.2%]</td>
<td>0.003</td>
</tr>
<tr>
<td>All CAS</td>
<td>11.5</td>
<td>10.1</td>
<td>-1.9% [-3.2%, -0.6%]</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>Hospital Mortality</td>
<td>21.7</td>
<td>21.0</td>
<td>-0.2% [0.7%, 0.4%]</td>
<td>0.46</td>
</tr>
</tbody>
</table>

Definition:

• Hospital mortality: death from any cause at hospital episode discharge

Statistical analysis:

• Trends were modeled by exponential regression

• Trends in hospital mortality of the ICU and general wards were stratified by ∆SOFA scores

Conclusions

➢ Compliance to blood culture and lactate bundle were low, but overall hospital mortality was comparable to other high-income regions

➢ Significant proportion of invasive organ support for CAS was provided in general wards rather than ICU

➢ Rates of both use of Big-gun and AMR were increasing over the last decade

➢ Hospital mortality of CAS had only improved for patients managed in the ICU during the study decade

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References:
