HIV-ASSOCIATED BLOODSTREAM INFECTION (BSI): TRENDS OVER SEVEN YEARS

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Introduction
- Patients with HIV are known to be at risk for bacteremia.
- Because of recent increases in the use of effective HAART and new vaccines, patients with HIV have an improved immune response.
- It is uncertain whether the causal organism have changed over time.
- We present a review of bacteremia in HIV-patients during 2010-2016.

Objectives
- To compare the frequency of bacteremia among HIV and non-HIV patients.
- To compare the frequency of bacteremia by patient characteristics, organisms and source

Materials and Methods
- We conducted a retrospective review of blood culture (BC) results from 1/1/2010 to 12/31/2016.
- Data were collected on the bloodstream infection (BSI), HIV status, place of onset, patient demographics, the source of the BSI and organism distribution.
- Community Onset (CO) was defined as 0-3 days after admission; Hospital Onset (HO) was defined as ≥ 4 days after admission.
- Data were analyzed using the chi-squared test and Student's t-test.

Results
- We reviewed 5185 BSI episodes. 63 patients with HIV accounted for 86 episodes.
- The majority of cases were community-onset, 79.1% and 74.5% in cases with and without HIV, respectively.
- As seen in Table 1, patients with HIV were younger (p=0.001) and more likely to be African American (p=0.001).
- The three most common organisms in HIV patients were Staphylococcus aureus (SA), Escherichia coli (EC) and Streptococcus pneumoniae (SPN). In patients without HIV, the three most common organisms were SA, EC and Klebsiella pneumoniae (KP).
- HIV patients were more likely to have respiratory tract as the source of BSI than non-HIV patients. (Figure 1/)
- While the rate of SA (25.3-22%), SPN (2-3%), and KP (10.2-8.4%) remained stable during the study period, the rate of EC increased (18.5-25.7%, p=0.002). (Figure 2).

Conclusions
- SA and EC are the top causes of BSI in patients with and without HIV.
- HIV patients remain at higher risk for SNP and are more likely to have a respiratory source of BSI. They have a lower prevalence of KP-BSI.
- Whether the lack of decline in the SPN rate is related to poor compliance with vaccination is uncertain.
- Further studies are needed to assess the lower incidence of KP in HIV patients and assess pneumococcal vaccination status.

References

Table 1: Comparison of Patient Characteristics by HIV Status

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HIV n=63</th>
<th>Non-HIV n=4134</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (yrs.)</td>
<td>46.7 ± 13.2</td>
<td>63.8 ± 17.4</td>
<td>0.001</td>
</tr>
<tr>
<td>Male sex</td>
<td>65.1%</td>
<td>52.1%</td>
<td>0.04</td>
</tr>
<tr>
<td>AA race</td>
<td>90.5%</td>
<td>55.5%</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Table 2: Common Organisms by HIV Status

<table>
<thead>
<tr>
<th>Organism</th>
<th>HIV n=63</th>
<th>Non-HIV n=4134</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SA</td>
<td>31.3%</td>
<td>23.5%</td>
<td>0.1</td>
</tr>
<tr>
<td>EC</td>
<td>15.0%</td>
<td>21.3%</td>
<td>0.2</td>
</tr>
<tr>
<td>SPN</td>
<td>13.0%</td>
<td>8.9%</td>
<td>0.2</td>
</tr>
<tr>
<td>KP</td>
<td>3.8%</td>
<td>8.9%</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Figure 1: Source of Infection by HIV Status

Figure 2: Rate of SA and EC over Time