Bloodstream infections with *Candida auris* among children in Colombia: clinical characteristics and outcomes of 34 cases

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**Materials and methods**

At two acute care hospitals in Colombian, Barranquilla city (hospital A) and Cartagena city (hospital B), July 2014-October 2017. We performed:

- Retrospective review of microbiology records for identification of suspected *C. auris* cases
- Review of medical charts using a standardized case report form.
- Isolates identification by MALDI-TOF MS.
- Antifungal susceptibility test (AST): To define resistance we used CDC tentative breakpoints for Minimum Inhibitory Concentration (MIC) interpretation. We tested 17 isolates: -
  - broth microdilution: ≤82 µg/mL for fluconazole, ≥4 µg/mL for amikacin and micafungin, and ≥2 µg/mL for caspofungin
  - E-test: ≥22 µg/mL for amphotericin B

**Results**

During July 14 - October 2016, Hospitals A and B reported a total of 110 BSI caused by species of the *Candida* genus (Hospital A: n=56, and Hospital B: n=54). *C. auris* was isolated in 34 (31%) of those BSI. By hospital we observed that *C. auris* was isolated in 20 of 56 (36%) children from Hospital A and 14 of 54 (26%) of children from Hospital B.

- **Characteristics of 34 cases of *C. auris* bloodstream infections by *C. auris* analysis by age group**

<table>
<thead>
<tr>
<th>Age groups</th>
<th># of cases</th>
<th># of cases</th>
<th>F</th>
<th>M</th>
<th>F/M</th>
<th>Median (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td>17</td>
<td>6</td>
<td>11</td>
<td>2.86</td>
<td>1 (1-3)</td>
<td></td>
</tr>
<tr>
<td>&gt;1 year</td>
<td>17</td>
<td>11</td>
<td>6</td>
<td>1.82</td>
<td>2 (1-3)</td>
<td></td>
</tr>
</tbody>
</table>

  - **Hospital mortality**
    - Hospital A: 3 (7%)
    - Hospital B: 13 (91%)
  - **Mortality**
    - Hospital A: 0 (0%)
    - Hospital B: 28 (82%)
  - **BSI incidence rates**
    - Hospital A: 0.4 (0.8)
    - Hospital B: 6 (100)
  - **Time of death**
    - Hospital A: 24 (71)
    - Hospital B: 7 (21)

  - **Table of antifungal susceptibility and clinical characteristics**

<table>
<thead>
<tr>
<th>Antifungal susceptibility and clinical characteristics included:</th>
<th># of cases</th>
<th># of cases</th>
<th>F</th>
<th>M</th>
<th>F/M</th>
<th>Median, (IQR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biopsy</strong>, <strong>Candida biofilm</strong>, <strong>M protein</strong>, <strong>Candida antigen</strong></td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1 (1-3)</td>
<td></td>
</tr>
<tr>
<td><strong>Antifungal treatment</strong>, <strong>Antifungal resistance</strong></td>
<td>13</td>
<td>7</td>
<td>6</td>
<td>1.17</td>
<td>2 (1-4)</td>
<td></td>
</tr>
<tr>
<td><strong>Hospital mortality</strong></td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1 (1-3)</td>
<td></td>
</tr>
<tr>
<td><strong>Antifungal resistance</strong>, <strong>M protein</strong>, <strong>Candida antigen</strong></td>
<td>13</td>
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<td>1.17</td>
<td>2 (1-4)</td>
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</tr>
</tbody>
</table>

**Discussion and conclusion**

*C. auris* is emerging as an important public health problem in Colombia and many regions around the world. This report describes clinical finding of pediatric *C. auris* BSI:

- **Two-thirds of *C. auris* cases reported in younger were 1 year.
  - Mortality was high with almost half patients dying before discharge.
  - In Colombia mortality among adults with *C. auris* BSI was 35%.
  - Among other pediatric *C. auris* cases series:
    - 28% mortality in Venezuela
    - 33% mortality in India
  - Half of isolates tested had elevated MIC against amphotericin-B, which is a challenge because amphotericin-B is often used as the treatment of choice for fungal infections in neonates and young children.
  - Resistance to fluconazole and micafungin was low
  - *C. auris* should be vigilant for *C. auris* outbreaks and take necessary infection control measures to stop the spread of the organism.

**Acknowledgment**

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