Background

- There are several commonalities between Candida and Clostridium difficile infections.
- Both are important causes of hospital-associated infections (HAIs).
- Both can colonize the gut in people without symptoms.
- Water contact risk factors for infection.
- Risk factors associated with gastrointestinal tract.
- Outbreaks occur in the hospital and elsewhere.
- Infections are transmitted between two persons sometimes as a result of decreased hand hygiene.

Methods

- CDC conducts population-based surveillance for candidemia and CDI.
- The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Objectives of the Study

- To describe the prevalence and characteristics of patients developing candidemia after CDI using data from a longitudinal population-based surveillance program.
- To identify factors associated with the development of candidemia after CDI.

Results

- A matched case-control study was conducted to identify factors associated with candidemia.
- Data were collected from January 1, 2009–December 31, 2013.
- Cases were adults in healthcare facilities at least 18 years of age.
- Controls were hospital residents of the same age and gender.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Controlsˆ</th>
<th>Cases</th>
<th>Matched Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age category</td>
<td>45-64</td>
<td>18-44</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Female</td>
<td>0.91</td>
<td>0.72-1.2</td>
</tr>
<tr>
<td>Charlson comorbidity index</td>
<td>0-1</td>
<td>2+</td>
<td>0.81</td>
<td>0.18-3.0</td>
</tr>
<tr>
<td>Prior hematopoietic stem cell transplantation</td>
<td>Yes</td>
<td>No</td>
<td>1.40</td>
<td>0.28-6.12</td>
</tr>
<tr>
<td>Prior antibiotic exposure within one day before or after initial CDI diagnosis</td>
<td>Yes</td>
<td>No</td>
<td>2.92</td>
<td>1.22-7.20</td>
</tr>
<tr>
<td>Antibiotic exposure in the 12 weeks before CDI episode</td>
<td>Yes</td>
<td>No</td>
<td>3.12</td>
<td>1.85-5.39</td>
</tr>
<tr>
<td>Severe CDI#</td>
<td>No</td>
<td>Yes</td>
<td>3.94</td>
<td>1.25-12.60</td>
</tr>
<tr>
<td>Isolation of CVC</td>
<td>No</td>
<td>Yes</td>
<td>2.65</td>
<td>1.32-5.35</td>
</tr>
<tr>
<td>Invasive mechanical ventilation</td>
<td>No</td>
<td>Yes</td>
<td>4.89</td>
<td>2.01-12.56</td>
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<tr>
<td>Use of broad-spectrum antibiotics</td>
<td>No</td>
<td>Yes</td>
<td>2.10</td>
<td>1.28-3.53</td>
</tr>
<tr>
<td>Use of aminoglycosides</td>
<td>No</td>
<td>Yes</td>
<td>2.99</td>
<td>1.05-8.69</td>
</tr>
</tbody>
</table>

Discussion

- Candidemia among adults with CDI is rare but is associated with high mortality.
- It is also possible that this association exists because severe CDI and colectomy are correlated.
- Both surveillance systems rely on active laboratory-based case finding among healthcare facility residents.
- CDC conducts population-based surveillance for candidemia and CDI.

Conclusions

- Cases should be reported to the CDC.
- Future research is needed to evaluate the independent effect of CDI treatment on candidemia.

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National Center for Emerging and Zoonotic Infectious Diseases
Division of Foodborne, Waterborne, and Environmental Diseases

References


2. CDC Co-infection Study Team. Co-infection is rare among patients with CDI. – E 37% of CDI cases developed co-infection. – Severity, morality, time to candidemia patients without co-infection.

3. CDC Co-infection Study Team. Score of the risk factors for candidemia among patients have been previously described in the literature. – Black race – Diabetes – Broad-spectrum antibiotic exposure

4. CDC Co-infection Study Team. Severe CDI and colectomy may be associated with this infection because Candida is one of the most common organisms cultured from the bloodstream.

5. CDC Co-infection Study Team. This finding of the relationship between Clostridium difficile and Candida albicans is marked of Candida albicans, which is known to be the marker of Candida albicans. This finding is consistent with the previous study on Candida albicans in CDI.