Antifungal Prescribing During Initial Implementation of Candidemia Early Detection and Species Identification Testing with T2Candida Panel

Falguni Patel, PharmD, BCPS, Elizabeth Young, PharmD, Department of Pharmaceutical Services, Riverside Community Hospital, Riverside, CA

Background

- Prescribing of antifungal agents in invasive fungal diseases, though a less prevalent hospital issue compared to bacterial infections, must be a focus of an antimicrobial stewardship program (ASP) due to their toxicity, interactions, cost, and emerging resistance.
- In this review, antifungal prescribing was examined during the initial implementation of the T2Candida Panel (T2) for early detection and species identification of candidemia.

Methods

- We included inpatients where a T2Candida Panel was ordered during the first 61 days of the introduction at our 373-bed community hospital.
- Invasive fungal disease risk factors, antifungal therapy management, T2 results, concurrent blood culture results, and time to test results were obtained through chart review.
Results

- Valid T2 results were reported in 59 patients.
- 98% (58/59) of patients met hospital criteria for T2 in at-risk patients. Concomitant blood cultures were ordered on 38/59 (64%) patients.
- Antifungals had been prescribed for 11/59 patients (18.6%) prior to T2 ordering for empiric treatment of invasive fungal disease.
- T2 resulted in 3 to 5 hours, and was available in the hospital reporting system in an average of 6.3 hours.

- Of the 59 T2 results, 6/59 (10%) were positive, 5/6 (83%) *C. albicans/C. tropicalis*, 1/6 (17%) *C. parapsilosis*. Of the patients with positive T2 results none had been prescribed antifungal therapy prior to the test.
- Appropriate antifungal therapy with either micafungin or fluconazole was ordered in positive T2 patients within 6 hours of hospital system reporting for 5/6 (83%) and within 9 hours in 1/6 (17%).
- All positive T2 patients had had concomitant blood cultures drawn with 3/6 (50%) reported as positive and those cultures reported *C. albicans* in agreement with their T2 results.
- Of the 53 patients with negative T2 results, none had subsequent positive fungal blood culture results and 8 had been on antifungals. Of those 8 patients, antifungal therapy was discontinued in accordance to clinical status.

<table>
<thead>
<tr>
<th>Patient #</th>
<th>T2Candida species</th>
<th>Regular blood culture species</th>
<th>Antifungal started &lt; 6 hrs</th>
<th>Antifungal started &lt; 9 hrs</th>
<th>Antifungal start based on T2Candida results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><em>C. albicans/C. tropicalis</em></td>
<td><em>C. albicans</em></td>
<td>✔️</td>
<td></td>
<td>micafungin</td>
</tr>
<tr>
<td>2</td>
<td><em>C. parapsilosis</em></td>
<td>Negative</td>
<td>✔️</td>
<td></td>
<td>fluconazole</td>
</tr>
<tr>
<td>3</td>
<td><em>C. albicans/C. tropicalis</em></td>
<td>Negative</td>
<td>✔️</td>
<td></td>
<td>fluconazole</td>
</tr>
<tr>
<td>4</td>
<td><em>C. albicans/C. tropicalis</em></td>
<td>Negative</td>
<td>✔️</td>
<td></td>
<td>fluconazole</td>
</tr>
<tr>
<td>5</td>
<td><em>C. albicans/C. tropicalis</em></td>
<td><em>C. albicans</em></td>
<td>✔️</td>
<td></td>
<td>fluconazole</td>
</tr>
<tr>
<td>6</td>
<td><em>C. albicans/C. tropicalis</em></td>
<td><em>C. albicans</em></td>
<td>✔️</td>
<td></td>
<td>fluconazole</td>
</tr>
</tbody>
</table>
Conclusion

• Early detection and identification of systemic fungal infection resulted in focused and appropriate antifungal therapy.

• An ASP can contribute to the optimal drug management of invasive fungal diseases by monitoring current prescribing practices supported by new rapid diagnostic technologies.

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Contact Information

Dr. Falguni Patel, RCH Antimicrobial Management Pharmacist
falguni.patel@hcahealthcare.com

Dr. Elizabeth Young, Pharmacy Clinical Manager
Elizabeth.young@hcahealthcare.com

Enhancing Clinical Outcomes Through the Judicious Use of Antimicrobials