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Mycology: Fungal infections

Candida bloodstream infections in a Greek hospital: 11-month survey. Epidemiology and antifungal susceptibility profiles

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Introduction

Bloodstream infections due to *Candida* species cause significant morbidity and mortality. Surveillance for candidemia is necessary to detect trends in species distribution and antifungal resistance. A retrospective study was conducted between January 2013 and November 2013 at Evangelismos General Hospital. The incidence of *Candida* species causing bloodstream infections and the susceptibilities of these isolates to antifungal agents were evaluated. The purpose of this study was to define the rate of *Candida* isolates among all positive blood cultures, species distribution between *albicans* and non-*albicans*, and antifungal susceptibility test among them.

Methods

Records from the microbiology department were evaluated for the study period. All hospitalized patients who had ≥ 1 blood culture positive *Candida* were included in the study. All isolates were identified according to conventional methods. Automated blood culture systems (BACTEC 9240 BD) were used. All isolates were identified to species level using Vitek 2 and Rapid ID Yeast Plus System (Remel). The in vitro susceptibility of the yeast isolates to antifungal agents were determined by the automatic Vitek 2 (Amphotericin B, Fluconazole, Fluocytocine, Voriconazole) and by the E test method (AB Biomerieux) for Caspofungin, Micafungin, according to the CLSI guidelines.

Results

* A total number of 1379 positive blood cultures were reviewed.

* Fungi were cultured from 74 blood cultures (5.36%).

* *C. albicans* and *parapsilosis* were the most common isolates.

* *C. parapsilosis* had higher MIC in echinocandins, and *C. glabrata* was fluconazole resistant.

* All *Candida* isolates were ambisome, fluocytosine, sensitive.

Available results are given in table 1. There was a significant difference in antifungal resistance rates to fluconazole in relation to our previous registry 2011-2012, probably due to use of fluconazole as prophylactic therapy.

Table 1

	MIC range	<i>C.albicans</i>	<i>C.parapsilosis</i>	<i>C.glabrata</i>	<i>C.tropicalis</i>	<i>C. krusei</i>
No of isolates		30	31	10	2	1
AmphotericinB	MIC \leq 0.25-1	99%	99%	99%	99%	99%
Fluconazole	MIC \leq 2	85%	40%	20%	99%	99%
Fluocytocine	MIC \leq 1-4	99%	99%	60%	99%	99%
Voriconazole	MIC \leq 0.25	99%	75%	80%	99%	99%
Caspofungin	average	0.125	1	0.125	0.125	0.125
Mycafungin	average	0.125	1	0.006	0.125	0.125

Conclusion

Candidemia is a significant problem especially in medical wards. Early recognition and prompt empirical treatment are essential to improve outcomes of patients at risk for developing Candidemia. Improvement of surveillance is crucial to recognizing emergence of highly resistant strains.

