

ANTIFUNGAL SUSCEPTIBILITY OF CANDIDA SPP. ISOLATED FROM PEDIATRIC PATIENTS: A SURVEY OF FOUR CHILDREN'S HOSPITALS

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Introduction: *Candida* species are the most common cause of fungal infections in hospitalized patients and the fourth most common isolate recovered in cases of nosocomial bloodstream infection in the US. Recent studies have reported a relative reduction in the rates of infection caused by *C. albicans* and a shift towards non-*albicans Candida* spp. Data on the distribution and susceptibility of *Candida* spp. from children's hospitals is limited.

Methods: A total of 179 pediatric clinical *Candida* spp. isolates from 2003 were identified. Broth microdilution MIC's for amphotericin B (Amb), fluconazole (Flu), voriconazole (Vori), caspofungin (Cas), Posaconazole (Pos), and Ravuconazole (Rav) were performed according to the NCCLS approved standard M27-A. All drugs tested were obtained as standard reference powders and the NCCLS M27-A recommendations for dilutions of antifungal agents were followed. Microdilution trays containing serial dilutions of the antifungal agent in RPMI 1640 buffered with 0.165M MOPS were prepared in-house and stored at -80°C until ready for use. MIC's were determined after incubation (35°C ambient air in a moist chamber) at both 24h and 48h. For amphotericin B, the endpoint was defined as the lowest concentration that completely inhibited growth. For all other agents tested the MIC was defined as the lowest concentration in which a prominent decrease in turbidity was observed. *C. krusei* ATCC 6258 and *C. parapsilosis* ATCC 22019 were used as QC reference strains. QC was performed each time isolates were tested and their results were consistently within the acceptable ranges.

Results: Table 1. Species Distribution and Antifungal Susceptibility of *Candida* spp. (48 hr MIC₉₀, µg/ml)

Antifungal Agent	<i>C. albicans</i> (77)	<i>C. parapsilosis</i> (57)	<i>C. glabrata</i> (15)	<i>C. tropicalis</i> (14)	<i>C. lusitanae</i> (13)
Amphotericin B	1.0 Range 0.25-2.0	2.0 Range 0.25-4.0	1.0 Range 0.5-2.0	1.0 Range 0.5-1.0	1.0 Range 0.5-1.0
Fluconazole	4.0 Range <0.12->64.0	2.0 Range 0.5-4.0	64.0 Range 8.0->64.0	16.0 Range 0.25->64.0	2.0 Range 0.5-4.0
Voriconazole	2.0 Range <0.03->16.0	0.06 Range <0.03-0.06	2.0 Range 0.5-8.0	>16.0 Range <0.03->16.0	<0.03 Range <0.03
Caspofungin	0.25 Range 0.06-1.0	1.0 Range 0.25-2.0	0.25 Range 0.12-0.5	0.5 Range 0.12-1.0	1.0 Range 0.5-1.0
Posaconazole	0.25 Range <0.03->16.0	0.12 Range <0.03-0.25	2.0 Range 0.5->16.0	1.0 Range <0.03->16.0	0.06 Range <0.03-0.12
Ravuconazole	0.06 Range <0.03-8.0	<0.03 Range <0.03-0.12	2.0 Range 0.25->16.0	4.0 Range <0.03-16.0	<0.03 Range <0.03-0.06

Conclusion: In our study we found *C. albicans* to be the most frequent isolate 44% (77/176). *C. parapsilosis* constituted the second most frequent isolate (57/176). The high isolation rate of *C. parapsilosis* most likely reflects the large number of isolates from NICUs, where *C. parapsilosis* has previously been reported to be a frequent *Candida* species found. The other species identified are similar to those seen in the adult high risk population. Am B, Flu, Vori, and Cas all demonstrated good activity against these isolates with the exception of Flu against *C. glabrata*, *C. tropicalis* and a few *C. albicans*. Pos and Rav both demonstrated excellent activity against all isolates.