Abstract

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In vitro antifungal suseptibility profiles of nine antifungal drugs against global collection of genotyped Hortaea wernekeii isolates

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Background: The hyphomycete genus Hortaea represents anamorph members of the ascomycetes in the order Capnodiales comprising the black yeast-like. The aim of this study is to determine the *in vitro* activity of nine existing and new antifungal drugs against *H. Werneckii* isolates stored in the CBS collection.

Material/methods: The strains were analyzed by amplified fragment length polymorphism (AFLP) genotyping and subjected to sequencing of the elongation factor 1-alpha genes. *In vitro* susceptibility was determined as described in CLSI document M38-A2 for amphotericin B, itraconazole, voriconazole, Isavuconazole, posaconazole, fluconazole, caspofungin, and anidulafungin.

Results: The widest ranges and the highest MICs/MECs were seen for fluconazole and caspofungin (range 8->64 µg/ml and 1-8 µg/ml, respectively). The GM MICs/MECs against all the species of H. Werneckii tested were as follow in increasing order; posaconazole (0.07 µg/ml), voriconazole (0.13 µg/ml), isavuconazole (0.14 µg/ml), itraconazole (0.16 µg/ml), terbinafine (0.19 µg/ml), amphotericin B (0.89 µg/ml), anidulafungin (1.45 µg/ml), caspofungin (2.47 µg/ml), and fluconazole (14.38 µg/ml). There were no significant differences in the activities of the surveyed drugs against of environmental and clinical isolates ($p > 0.05$). The difference in the MIC_{90} between the strains did not differ by more than one dilution.

Conclusions: posaconazole, voriconazole and itraconazole were the most active drugs with high *in vitro* activity against *H. werneckii*. From the echinocandins tested caspofungin and anidulafungin demonstrated poor *in vitro* activity, those drugs might not be useful for treating a range of this fungal infections, either alone or as part of a combination therapy regimen. However, their clinical effectiveness in the treatment of infection remains to be determined.