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P2162 Azole resistance in *Candida parapsilosis* and *Candida tropicalis* from a global surveillance is mainly caused by alterations in *Erg11* and MDR overexpression

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Background: The management of patients with invasive candidiasis is challenging and azoles play an important role in the treatment of these infections. Azole use can be limited by emerging resistance to these agents. We evaluated the activity of fluconazole and voriconazole against a global collection of *Candida* spp. isolates and characterized azole resistance mechanisms in *C. parapsilosis* (CPRP) and *C. tropicalis* (CTRO).

Materials/methods: A total of 2,825 invasive *Candida* spp. isolates collected in 59 hospitals (25 countries) during 2016-2017 were susceptibility tested by CLSI broth microdilution methods. CLSI interpretive criteria was applied. CPRP and CTRO isolates were submitted to quantitative RT-PCR for Erg11, CDR1, and MDR1 and to whole genome sequencing analysis for alterations that have been associated with azole-resistance.

Results: Fluconazole and voriconazole were very active against *C. albicans*, inhibiting 99.5% and 99.8%, respectively. Fluconazole resistance in *C. glabrata* was 6.5% globally, but these rates were much higher in the United States (13.0%) when compared to Asia-Pacific (3.2%) and Europe (3.0%). Fluconazole-resistant *C. glabrata* was not observed in Latin America. Resistance to voriconazole in *C. krusei* was only noted in the United States (5.0%). Fluconazole and voriconazole susceptibility rates were 89.1% and 91.6% for CPRP isolates, respectively. Azole resistance among CPRP isolates was not observed in Asia-Pacific or Latin America and was mostly noted in Europe (15.1% fluconazole-resistant). Among 47 CPRP isolates nonsusceptible/non-wildtype to azoles, 35 were from Italy (3 hospitals; 22 from Genoa) and 36/47 carried mutations in Erg11 and overexpressed MDR1 with or without additional mechanisms. Azole nonsusceptible/non-wild-type CTRO (n=7) were from 5 countries: 3 isolates from Thailand had the same Erg11 alteration, and 2 others had MDR1 alterations without or with a slightly elevated expression of this efflux pump. Fluconazole non-wildtype isolates were noted among 3/77 (3.9%) *C. dubliniensis*, 4/17 (23.5%) *C. guilliermondii*, and 4/47 (8.5%) *C. lusitaniae*.

Conclusions: Echinocandin use has been recommended over fluconazole for invasive *Candida* infections; however, azoles are still active against the most common *Candida* spp. and resistance seems to be restricted to certain organisms in specific geographic regions, mainly *C. glabrata* in the United States and CPRP in Italy.