

Session: P085 Antifungal resistance

Category: 6d. Antifungal resistance & susceptibility testing

25 April 2017, 12:30 - 13:30

P1753

First report of echinocandin resistance in *Candida tropicalis* and *Candida glabrata* isolates causing invasive candidiasis from mainland China

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Background: Echinocandin drugs are more and more widely used for the treatment of invasive candidiasis (IC), whilst echinocandin resistance is still considered rare worldwide. Here we report for the first time a *Candida tropicalis* and a *Candida glabrata* isolates with echinocandin resistance causing IC in mainland China.

Material/methods: These two echinocandin resistant cases were identified from the China Hospital Invasive Fungal Surveillance Net (CHIF-NET), a prospective nationwide study in China. Isolates were identified by DNA sequencing of the fungal internal transcribed spacer (ITS) regions, and the *in vitro* susceptibility to nine antifungal drugs was determined using Sensititre YeastOne YO10 methodology. The hot spots (HS) regions of the *fks* gene were sequenced to detect any resistant-associated nucleotide sequence mutations.

Results: The echinocandin resistant *C. glabrata* isolate was cultured from ascitic fluid of a 46-year-old male patient with intra-abdominal infection after surgical operation in 2012. Prior to identification of the strain, the patient had received fluconazole therapy but with no echinocandin exposure history. The echinocandin resistant *C. tropicalis* isolate was identified from venous catheter of a 60-year-old female patient who had underlie severe coronary disease and lung infection upon admission. Before identification of the strain, the patient had received micafungin treatment for 19 days. Both isolates were highly cross-resistant to all three echinocandin agents tested (micafungin, anidulafungin and

casposfungin) with MICs of ≥ 8 $\mu\text{g/ml}$. A mutation E655K were found in Fks2p HS1 region of the *C. glabrata* isolate, and a mutation S80P were found in Fks1 HS1 region of the *C. tropicalis* isolate.

Conclusions: Our study confirmed the emergence of echinocandin resistance in two predominant non-*albicans Candida* species causing IC in China. Although the overall prevalence of echinocandin resistance was still low, continuous monitoring of strains' antifungal susceptibility is warranted.