eP243
ePoster Viewing
Antifungal drug susceptibility and resistance

Twofold point mutations in Candida albicans FKS1 gene leading to echinocandin resistance after long-term treatment

K. Heidrich[1], R. Krause[2], M. Hoenigl[2], C. Lass-Floerl[3], W. Buzina[1]

[1]Institute of Hygiene Microbiology and Environmental Medicine, Medical University Graz, Graz, Austria

[2]Section of Infectious Diseases and Tropical Medicine Department of Internal Medicine, Medical University Graz, Graz, Austria

[3]Division of Hygiene and Medical Microbiology, Innsbruck Medical University, Innsbruck, Austria

Objectives
The development of pan-echinocandin resistance of *Candida albicans* isolates with the same MLST (multilocus sequence typing) profile isolated from a candidemic patient prior and after caspofungin treatment is shown.
Methods
Two *Candida albicans* isolates obtained from the same patient from blood prior to caspofungin treatment and from the oral cavity after caspofungin treatment, respectively, were investigated. Antifungal susceptibility tests were performed both with Etest® and MICRONAUT susceptibility testing system. The ß-1,3-glucan synthase catalytic subunit 1 (FKS1) gene, which is known as a hotspot for mutations that lead to reduced susceptibility to echinocandins, was amplified and sequenced. MLST profiles were examined by comparison of the sequence of 7 DNA sites encoding housekeeping genes: AAT1a, ACC1, ADP1, PMI1b, SYA1, VPS13, and ZWF1b.
Results
The colonizing isolate obtained after caspofungin treatment showed reduced echinocandin susceptibility whereas the pre-treatment invasive isolate was susceptible to all antimycotics tested. Both isolates shared the same MLST profile, suggesting a high clonal homology. The pre-treatment isolate had no mutations of the FKS1 gene compared to wild type strains, the post treatment isolate showed two point mutations in hot spot 1: the already described mutation S645F and the so far unreported mutation V576G.
Conclusion
This report documents the development of pan-echinocandin resistance after caspofungin treatment caused by two point mutations in FKS1 gene. So far, this is the first FKS1 mutant isolated in Austria.