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MEETING ABSTRACT

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Penetration of echinocandins in wound secretion

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Background: Echinocandins are the antifungals of choice for the treatment of invasive *Candida* infections. Data on echinocandin concentrations achieved in wounds are scarce. Therefore, we determined the penetration of echinocandins into wound secretion of adult critically ill patients.

Methods: Five Austrian intensive care units (ICUs) located in Innsbruck, Vienna and Graz were involved. Patients were enrolled if they were treated with one of the three clinically used echinocandins (anidulafungin, micafungin or caspofungin) and had a wound drainage for therapeutic purpose. Wound secretion was collected as a single sample or, if possible, pre-dose, 1, 4, 8, 12, 18, and 24 hours following the start of infusion. At the same time, blood samples were drawn for comparison. Anidulafungin and micafungin concentrations were quantified by high-pressure liquid chromatography (HPLC) coupled with UV detection. Caspofungin concentrations were instead determined by HPLC combined with tandem mass spectrometry (MS/MS).

Results: Twenty-two adult critically ill patients were enrolled into the study. Age of the patients was 64 (40–83) years and weight 77.5 (46–101) kg. Echinocandin levels in wound secretion amounted to 0.70 (0.00–1.94) mg/l for anidulafungin, 0.06 (0.00–1.70) mg/l for micafungin and 2.19 (0.18–4.04) mg/l for caspofungin. In wound secretion, anidulafungin achieved 24% (0–54%), micafungin 17% (1–429%) and caspofungin achieved 16% (4–82%) of the simultaneous plasma concentrations. Values are reported as median (range).

Discussion: Echinocandin concentrations in wound secretion were highly variable, but in most of the samples considerably lower than the levels measured in plasma taken simultaneously. As the effectiveness of a therapy largely depends on the penetration of the drug into the site of infection, sub-therapeutic exposure should be taken into consideration when treating fungal wound infections with echinocandins.

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