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MEETING ABSTRACT

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**A method for quantification of echinocandins in body fluids**

René WELTE and Romuald BELLMANN\*

*Clinical Pharmacokinetics Unit, Inflammation Research Laboratory,  
Division of Medical Emergency and Intensive Care Medicine,  
Department of Internal Medicine I, Innsbruck Medical University,  
Innsbruck, Austria*

**Background:** Invasive fungal infections (IFIs) pose a major threat to immuno-compromised and critically ill patients. Anidulafungin and micafungin belong to the echinocandins, which are active against *Candida* and *Aspergillus*. Target-site concentrations of antimicrobials are crucial for eradication of pathogens and for the clinical outcome. Therefore, we established and validated a method for quantification of anidulafungin and micafungin in various body fluids (plasma, ascites, pleural effusion, cerebrospinal fluid and bile).

**Methods:** Anidulafungin and micafungin were measured by high-performance liquid chromatography (HPLC) and UV detection. Sample preparation was performed by protein precipitation with acetonitrile. Gradient elution was done with ammonium acetate and acetonitrile at a flowrate of 1.0 ml/min. Anidulafungin was detected at 306 nm, micafungin at 273 nm. Quantification was validated according to the European Medicine Agency (EMA) and the International Conference on Harmonisation (ICH) guidelines, including intra- and interday variability and repeatability.

**Results:** The lower limit of quantification was 0.1 µg/ml for anidulafungin and micafungin in human plasma, ascites, pleural effusion, artificial cerebrospinal fluid and porcine bile. Intra- and interday variability in these body fluids was within the required range (< 15%). The recovery of the echinocandins showed differences between the body fluids (e.g. for a concentration of 10 µg/ml about 50% in bile, about 90% in pleural effusion). Repeatability was within the required range for all body fluids for anidulafungin and micafungin. Coefficient of determination ( $R^2$ ) of the calibration curves was > 0.99 and fits therefore European guidelines of values higher than 0.99.

**Discussion:** Measurement of anidulafungin and micafungin by HPLC and UV detection was reproducible and sufficiently sensitive. Therefore, this method appears to be suitable for quantification of anidulafungin and micafungin in pharmacokinetic studies on echinocandin penetration into human body fluids.

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\*Corresponding author e-mail: [romuald.bellmann@i-med.ac.at](mailto:romuald.bellmann@i-med.ac.at)