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MEETING ABSTRACT

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Quantification of the antifungal anidulafungin in human brain tissue

Jana MARX[1], René WELTE[1], Patrizia MOSER[2,#] and Romuald BELLMANN[1,*]

[1]Clinical Pharmacokinetics Unit, Inflammation Research Laboratory, Division of Intensive Care and Emergency Medicine, Department of Internal Medicine I, Medical University of Innsbruck, Innsbruck, Austria; [2]Department of Pathology, Medical University of Innsbruck, Innsbruck, Austria; [#]current address: Department of Pathology, Tirol-Kliniken, Innsbruck, Austria

Background: The echinocandin anidulafungin shows fungistatic activity against *Aspergillus* spp. and fungicidal activity against *Candida* spp. It is recommended for treatment of invasive candidiasis in critically ill patients. Treatment of *Candida* infections of the central nervous system (CNS) with echinocandins, however, is discouraged because of their poor CNS penetration in animal models. Data on anidulafungin penetration into human brain are lacking so far. We therefore addressed the question whether effective anidulafungin concentrations can be achieved in human brain by standard doses.
Methods: Human brain tissue samples were taken at routine autopsies of deceased who had been treated with standard dose of anidulafungin for proven or suspected invasive candidiasis. Anidulafungin was measured by high-pressure liquid chromatography and UV detection. Sample preparation was performed by mechanical homogenisation, followed by solid-phase extraction. Anidulafungin quantification was done by triplet measurements ($n = 3$). Quantification was validated according to the European Medicines Agency (EMA). The lower limit of quantification (LLOQ) was 0.05 µg/g.
Results: So far, autopsy samples have been obtained from four deceased. The time between the last anidulafungin infusion and death ranged from 11.5 h to 299 h. Treatment duration was between 6 and 17 days. The cumulative doses ranged from 700 to 1,800 mg. The highest concentration (0.55 µg/g) was detected in patient 3 who died 11.5 h after the last infusion. Anidulafungin brain concentration in patient 2 was below LLOQ. She had received her last anidulafungin infusion 299 h before death.
Discussion: Anidulafungin brain concentrations, however, were low in all autopsy samples. They were comparable to the levels previously reported from animal studies. Anidulafungin was detectable even 11 days after the last administration, although its concentration was below 0.05 µg/g at this time. Thus, our preliminary results do not support the use of anidulafungin in CNS infections.
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*Corresponding author e-mail: *romuald.bellmann@i-med.ac.at*