

Session: P084 Antifungal drugs and treatment II

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## Caspofungin show poor penetration into cerebrospinal fluid following intravenous administration of standard doses

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**Background:** While Caspofungin has been used for the treatment of fungal infections of the central nervous system (CNS), Caspofungin kinetics in cerebrospinal fluid (CSF) after intravenous administration has been studied exclusively in animal models indicating poor penetration of the drug into CSF. Human data are missing, so far.

**Material/methods:** In 10 pediatric hemato-/oncologic patients (aged 1 to 14.2, median 8.6 years), we obtained 13 CSF samples at different time points after therapeutic or prophylactic intravenous infusion of Caspofungin by means of punctures performed for intrathecal treatment of the underlying diseases in patients without signs of CNS infection (n=10) or as diagnostic procedure of infectious meningitis (n=3). Concurrently, we obtained serum samples. Liquid chromatography-tandem mass spectrometry was used for Caspofungin quantification.

**Results:** While Caspofungin serum levels were in the expected range between 0.6 to 20.3 (median 7.4) µg/mL, 11 of 13 CSF levels were below the limit of detection of 0,084 µg/mL 3.0 to 48.0 (median 20.8) hours after i.v. infusion of Caspofungin. Only 2 (of 3) levels in patients with bacterial meningitis were above the limit of detection (0.3 and 0.09 mg/mL, respectively).

**Conclusions:** Our results indicate low capacity of Caspofungin to penetrate into the CNS even in inflamed meninges. Monotherapy with standard doses of Caspofungin appears not suitable for treatment of fungal CNS infections.