Real-time PCR and quantitative culture for monitoring of experimental *Aspergillus fumigatus* intracranial infection in neutropenic mice.

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Abstract

The central nervous system (CNS) is the most common site of dissemination during Aspergillus infection. PCR has the potential to facilitate early diagnosis of CNS aspergillosis, which could assist in reducing disease mortality. In two experiments, neutropenic CD-1 male mice were infected intracranially with 5×10^6 conidia of Aspergillus fumigatus. At time points up to 120 h after infection, mice were euthanized and samples of blood, brain, spinal cord and cerebrospinal fluid (CSF) were taken. The brain fungal burden was determined by quantitative culture, and fungal DNA was detected by quantitative PCR. Plating for A. fumigatus from the brain confirmed that all mice had burdens of $\log_{10}>3$ from 4 to 120 h after infection. A. fumigatus DNA was detected in blood (88 %), brain (96 %), CSF (52 %) and spinal cord (92 %) samples. The brain and spinal cord contained the highest concentrations of fungal DNA. Adapting the extraction protocol to maximize yield from small sample volumes (10 µl CSF or 200 µl blood) allowed PCR detection of A. fumigatus in infected mice, suggesting the use of CSF and blood as diagnostic clinical samples

for CNS aspergillosis.

Involved units

Fungal Septomics Oliver Kurzai Read more

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Details

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