Intrathecal synthesis of anti-viral antibodies in pediatric patients.

INTRODUCTION: Detection of intrathecal synthesis of specific antibodies (antibody index (AI)) is an established method to prove cerebral viral infection. Experience on its clinical application in large patient groups, however, is sparse.

METHODS: Retrospective analysis of pediatric patients with positive viral AI treated at RWTH Aachen University Hospital between 1999 and 2005.

RESULTS: 63 patients were studied, including 14 with encephalitis, 12 with neuritis, nine with cerebral vasculitis, six with multiple sclerosis (MS), five with severe cephalgia, five with psychiatric symptoms, three with hearing loss, two with seizures, three with white matter diseases, two with movement disorders, one with meningococcal meningitis and one with sinus venous thrombosis. Seven had several positive AI among them only one patient with MS. Of the 51 patients with a single positive AI and not having MS, 16 showed a positive AI for herpes simplex-, 13 for varicella zoster-, nine for Epstein-Barr-, four for cytomegalovirus-, four for mumps-, three for rubella- and two for measles virus. Frequent combinations were varicella zoster virus (VZV) and vasculitis (n = 8), herpes simplex virus (HSV) and neuritis (n = 6), Epstein-Barr virus (EBV) (n = 5), respectively, VZV (n = 4) and encephalitis as well as mumps virus (n = 2) and hearing loss.

Matched polymerase chain reaction (PCR) and AI data were available in 25 patients. PCR was simultaneously positive in three cases only.
DISCUSSION: AI testing identifies a similar spectrum of pathogens as known from cerebrospinal fluid (CSF) PCR studies. It complements the PCR and increases the chance for adequate diagnosis and treatment of patients with assumed cerebral viral infections.

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