Viral infections of the central nervous system

The project involves clinical studies of viral infections of the central nervous system (CNS) in children and adults: mainly varicella zoster virus (VZV), herpes simplex virus type 1 encephalitis (HSV-1) and type 2 (HSV-2) meningitis and pediatric viral encephalitis. The studies focus on diagnosis with quantitative polymerase chain reaction (PCR) and intrathecal antibodies, biochemical markers in cerebrospinal fluid (CSF), treatment and clinical outcome.

Background
Early diagnosis and treatment are essential to diminish neurological sequelae. CSF quantitative PCR and measurements of intrathecal antibodies are performed for etiological diagnosis. To optimise the diagnosis of CNS varicella zoster virus infection a new VZV serology is currently under development. Optimal antiviral treatment lengths in different viral CNS infections are not established, and several of the studies are of a prospective nature with different antiviral treatment regimes.

Studies
In adults the studies include herpes simplex encephalitis, herpes simplex meningitis and varicella zoster virus infections of the CNS. A prospective study is ongoing on pediatric encephalitis.
Herpes simplex encephalitis – an international prospective randomised double-blind study with oral valaciclovir treatment for 3 months, after completed iv. treatment for 2 -3 weeks, is ongoing.
Herpes simplex meningitis- we perform a national study of valaciclovir suppression therapy for 1 year and the patients are followed during two years. The results are currently evaluated.
Markers in cerebrospinal fluid and serum as well as measurements of cytokines and oxidation radicals produced by inflammatory cells are studied and correlated to prognosis.
VZV- causes a variety of neurological symptoms including stroke in all age-groups. A prospective study of CNS infections started 2007 and is ongoing until 2011. The natural histories of the different syndromes are studied and the study include biochemical markers, magnetic resonance tomography and assessments for neurological sequelae.
Pediatric viral encephalitis- Etiology and neurological sequelae are studied in a prospective study.
Members of the viral CNS infection study group

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Publications


Studahl M, Linde A. Chapter ”Influenza and CNS complications” in Clinical Neurovirology, J.H. Marcel-Dekker. Berger, Kentucky, USA.


