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CNS INFECTIONS

ADVANCES IN NEUROINFECTIOUS DISORDERS

Advances in therapy, outcome, and prediction of neurological infections published in the past year are reviewed from the University of Colorado Denver Health Sciences Center. Clinical trials of adjuvant dexamethasone therapy for bacterial meningitis result in a decrease in death rate and fewer unfavorable outcomes, but only in patients with meningitis caused by *Streptococcus pneumoniae.* Patients with meningitis and coexistent HIV infection are not benefited. Steroids should be reserved for immunocompetent patients with identified CSF gram-positive organism.

In patients with bacterial meningitis, prior antibiotic therapy may decrease the incidence of positive bacterial cultures in CSF and blood but does not decrease the frequency of positive CSF gram stains. Longer therapy is associated with higher CSF glucose and lower protein concentration but no change in CSF white blood cell count. CSF glucose and protein levels cannot be used to distinguish between bacterial and viral meningitis in patients who have received antibiotic pretreatment.

Recovery from neuroinvasive West Nile virus infection may be prolonged, but most patients return to normal functioning within 1 year.

Rapid RNA interference viral testing is successful in identifying novel pathogens in neuroinfectious diseases of unknown cause, leading to early treatment and potential new antiviral therapies. A lymphocytic choriomeningitis-like virus was identified as arenavirus in tissue, blood, and CSF specimens from three organ-transplant recipients who developed a fatal febrile encephalopathy 4-6 weeks after transplantation, when standard diagnostic techniques had failed. (Tyler KL. Neurological infections: advances in therapy, outcome, and prediction. **Lancet Neurol** Jan 2009;8:19-21). (Respond: E-mail: ken.tyler@uchsc.edu).

PEDIATRIC NEUROLOGY BRIEFS (ISSN 1043-3155) © 2009 covers selected articles from the world literature and is published monthly. Send subscription requests ($68 US; $72 Canada; $75 airmail outside N America) to **Pediatric Neurology Briefs - J. Gordon Millichap, M.D., F.R.C.P.- Editor,** P.O. Box 11391, Chicago, Illinois, 60611, USA. The editor is Pediatric Neurologist at Children's Memorial Hospital and Professor Emeritus, Northwestern University Medical School, Chicago, Illinois.

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COMMENT. Neuroinfectious disease is an expanding field of investigation, both in acute and in chronic disorders. The role of viral meningitis in the cause of epilepsy has received increasing attention (**Ped Neur Briefs** 2008;22:75). Maternal infection during pregnancy increases the risk of epilepsy in the offspring (**Ped Neur Briefs** 2008;22:45). Brain inflammation has a role in epileptogenesis (Choi J, Koh S. **Yonsei Med J** 2008;49:1-18).

CONTINUOUS EEG MONITORING IN CRITICALLY ILL PATIENTS WITH CNS INFECTIONS

The prevalence, predictors, and clinical significance of electrographic seizures (ESz) or periodic epileptiform discharges (PEDs) recorded during continuous electroencephalographic monitoring in critically ill patients with CNS infections were evaluated in a study at Columbia University Medical Center, New York, NY. Of 42 patients (mean age 39 years; range 0-82) identified between 1996 and 2007, 27 (64%) had viral infection, 8 (18%) bacterial, and 7 (17%) fungal or parasitic infections. Electrographic seizures were recorded in 14 (33%) patients and PEDs in 17 (40%). Either ESz or PEDs were recorded in 20 (48%) patients. Five (36%) of the 14 patients with ESz had clinical seizures. PEDs and viral infection were independently associated with ESz (P=0.001 and 0.02, respectively). ESz (P=0.02) and PEDs (P=0.01) were independently associated with poor outcome at discharge. Thirteen (31%) patients had severe disability, 3 were in coma or persistent vegetative state, and 5 died. (Carrera E, Claassen J, Oddo M, Emerson RG, Mayer SA, Hirsch LJ. Continuous electroencephalographic monitoring in critically ill patients with central nervous system infections. **Arch Neurol** Dec 2008;65:1612-1618).

COMMENT. Continuous EEG monitoring should be considered in patients with CNS infections and especially viral infection. Since electrographic seizures (ESz), recorded in 33% of the patients in this study, are associated with poor outcome, further studies are required to determine whether the ESz should be treated. The neurotropism and more extensive parenchymal damage after viral encephalitis compared to bacterial meningitis may explain the higher incidence of ESz with CNS viral infections.

NEUROMUSCULAR DISORDERS

BRACHIAL PLEXUS PALSY AND CORTICAL DYSPLASIA

Researchers at the Miami Children's Hospital report 2 infants with obstetrical brachial plexus palsy, ipsilateral leg weakness, and contralateral motor cortical dysplasia. Case 1, an 18-month-old girl presented for evaluation of a left brachial plexus palsy that followed a delivery complicated by shoulder dystocia. At 3 months, the left leg moved less and was shorter than the right. At 6 months, following a febrile seizure, a head CT revealed a smaller right hemisphere, and an EEG showed vertex spikes. Right-sided motor cortex dysplasia was diagnosed by MRI at 11 months of age and confirmed at 24 months. MRI of the brachial plexus and spinal cord were normal. At age 18 months, neurologic examination showed restricted left arm abduction and elbow flexion, decreased left biceps and