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INFECTION-RELATED DISORDERS

INFECTION-RELATED EPILEPTIC ENCEPHALOPATHY

A multicenter retrospective case series of 22 children (16 male, 6 female) aged 3-15 years (median 6.5 yrs) with prolonged or recurrent seizures occurring 2-14 days (median 5 days) after a febrile respiratory (59%) or nonspecific infection is reported from Kiel University, Germany. The early clinical course was biphasic in 68%, the acute period of high seizure activity lasting 1-12 weeks (median 3 weeks). Despite enteral and parenteral anticonvulsant drugs, barbiturate-induced coma (64%), pyridoxine (18%), folinic acid (9%), and adjuvant immunotherapy (46%) for suspected cerebral inflammation, the outcome was uniformly poor. CSF revealed 2-42 cells/mcl (median 5 cells/mcl) and no pathogens. Serological and PCR tests for pathogens were negative. Inborn errors of metabolism, mitochondrial disease, including Alpers syndrome (POLG disease), were excluded. EEG showed diffuse slowing (41%) or multifocal discharges (59%). MRI or CT during acute phase was normal in 41% and showed altered signal intensities in hippocampus or temporal lobe in 41%. Follow-up MRI showed brain atrophy in 10 (50%) of surviving patients. Brain biopsies performed in 7 children (32%) showed gliosis but no evidence of inflammation. The median follow-up was 5 years (range 1-14 years). Two children died, 8 had persistent impaired consciousness, 8 had refractory epilepsy, 2 had behavior disorders, and 2 recovered. The authors propose the term "febrile infection-related epilepsy syndrome" (FIRES). (van Baalen A, Hausler M, Boor R, et al. Febrile infection-related epilepsy syndrome (FIRES): a nonencephalitic encephalopathy in childhood. **Epilepsia** June 2010;51:1323-1328). (Respond: Dr Andreas van Balen, Department of Neuropediatrics, Christian-Albrechts-Universitat zu Kiel, Schwanenweg 20, 24105 Kiel, Germany.
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COMMENT. Under different terminologies, this syndrome has been described in various case series, and was first reported in **Brain** (1961;84:680-708) as "acute encephalopathies of obscure origin" by Lyons, Dodge, and Adams. "Lyons-Dodge-Adams syndrome" would be a suitable eponym. Further research concerning the etiology suggested by the current authors includes immune and nonimmune mechanisms (eg.channelopathies, antibodies against ion channels and receptors, and infection-triggered alterations of receptor expression). A special issue on acute encephalopathy/encephalitis in childhood appears in **Brain Dev** June 2010.

ACUTE LIMBIC ENCEPHALITIS IN JAPANESE CHILDREN

Clinical, laboratory, and radiographic findings in 14 cases (median age 10 years; range 4-14 yrs) of nonparaneoplastic limbic encephalitis were analyzed by researchers at the National Center of Neurology and Psychiatry, Kodaira, Japan. Infectious febrile illness preceded onset by 0-9 days in 12 patients. Seizure (n=10) was the most common initial symptom, consciousness was impaired in 5, and 3 presented with psychiatric symptoms. All patients developed impaired consciousness, short-term memory loss occurred in 12, and psychiatric symptoms were common (emotional lability (n=7), irritability (7), hallucinations (4), aggression (4)). Ten patients had all 3 signs of limbic encephalitis (short-term memory deficit, limbic seizures, and psychiatric symptoms). Other symptoms included movement disorders (4), and dysarthria (2). CSF showed mild to moderate pleocytosis in 8 patients, and elevated protein in 4. EEG showed slowing. MRI revealed signal abnormalities in hippocampal or amygdaloid formations in 9. Herpes simplex virus antibody or PCR was negative in all. Anti-voltage-gated potassium channel antibody was negative in one patient. Other autoantibodies associated with limbic encephalitis were not examined. Ten patients received immunomodulatory treatment (corticosteroids, iv immunoglobulin, and plasmapharesis), and 12 were given prophylactic acyclovir. Overall prognosis was favorable: 10 recovered with normal IQ; only one had severe cognitive impairment. Neurological sequelae included epilepsy in 5, psychiatric disorder (3), and memory impairment (3). (Sakuma H, Sugai K, Sasaki M. Acute nonparaneoplastic limbic encephalitis in childhood: a case series in Japan. **Pediatr Neurol** Sept 2010;43:167-172). (Respond: Dr Sakuma. E-mail: sakumah@ncnp.go.jp).

COMMENT. The authors conclude that childhood limbic encephalitis differs from that in adults. Whereas initial symptoms in children are principally acute seizures and impaired consciousness, adults present with subacute memory impairment or psychiatric symptoms, and most cases of limbic encephalitis in adults are associated with neoplasm. Antecedent infection may cause limbic encephalitis in children through a secondary autoimmune response. This study was limited by the lack of autoantibody tests. Age related differences in symptoms of limbic encephalitis in children and adults will require investigation through immunological, including humeral and cellular immunity.

Temporal progression of non-paraneoplastic NMDA antibody encephalitis in adults, studied in 35 European patients, found 10 (8 female) aged 17-44 years (median 25.5 yrs)