Acute hemiconvulsive encephalopathy of childhood
with prominent unilateral delta activity
in the electroencephalogram

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Twenty children with an acute hemiconvulsive encephalopathy are
reported who had a sudden onset of focal epileptic seizures. The
majority had clinical evidence of hemiparesis which was transient.
All had very prominent unilateral delta activity in the EEG which
also cleared gradually but at a rate much slower than the clinical
symptoms. The initial picture of these children was similar to those
with post-convulsive acute hemiplegia of childhood but the subsequent
course was benign with regards to neurological deficit, intellectual
performance and recurrence of seizures. It is emphasized that
prompt control of convulsions in such patients may prevent further
cerebral damage secondary to the seizures themselves which may
have been responsible for poor prognosis previously reported in
similar patients.

Key Words: Acute hemiconvulsive encephalopathy, H.H.E.
syndrome, Acute hemiplegia of childhood.

The sudden appearance of a hemiplegia in infants and children is a
well-known event which accounts for a
significant proportion of cases of cerebral
palsy in children. The syndrome is
commonly designated as acute infantile
hemiplegia, infantile acquired hemiplegia,
or acute hemiplegia in children. In
the recent literature such cases are
divided into two major groups after
excluding those patients in whom a
cause is quite obvious: acute
hemiplegia of childhood following a
series of convulsions, often designated as
a post-convulsive group. (2) acute
hemiplegia of childhood, unassociated
with convulsions.

Angiographic studies have revealed
intracranial vascular occlusive disease,
usually arterial, in a large proportion of
the second group of patients. In the post-convulsive group which
constitutes the larger of the two groups, the ancillary diagnostic tests are usually
unrevealing and the etiological considera-
tions have included conditions such as
thrombophlebitis, focal inflammatory process or encephalitis, and epileptic damage. The prognosis for severity of motor deficit, intellectual impairments and chronic epileptic seizures is also different in the two groups, being generally poor in the post-convulsive group. Cases similar to post-convulsive hemiplegia have been reported by Gastaut, et al. and others under the names of hemiconvulsion-hemiplegia syndrome (H. H. syndrome). A very high proportion of these patients have also been reported to have developed chronic epilepsy, usually focal motor or psychomotor type, after a short seizure free interval resulting then into convulsion - hemiplegia - epilepsy (H.H.E. syndrome). The prognosis for intellectual and motor deficit is also held to be uniformly poor.

The author studied 20 patients who initially resembled the patients with postconvulsive hemiplegia or H. H. syndrome. However, these patients had a much better prognosis as regards motor and intellectual impairment and occurrence of chronic seizure disorder. This report of the clinical and EEG studies of these patients seems justified since an analysis may provide definite clues to etiology, prognosis and ideal therapy in children who are susceptible to develop hemiplegia following prolonged focal seizures.

Material and Methods

This study was carried out on 20 hospitalized patients who were seen in the EEG Laboratory of the Riley Children's Hospital of Indiana University School of Medicine from 1970-1978. These patients were selected by two criteria: (1) sudden onset of prolonged or recurrent seizures without a previous history of chronic epilepsy and (2) presence of prominent delta activity (continuous 1-3 cps, over 100 µv) which was either unilateral or if bilateral, showed a clear unilateral preponderance. The possibility of focal slowing of EEG as a transient postictal disturbance was ruled out by the persistence of the focal EEG abnormality beyond five days of the cessation of epileptic seizures. Excluded were cases where a definite cause for the lateralized abnormality and the focal seizures was obvious either at the time of EEG study or became established subsequently. Children who had head injury, intracranial tumor, arteriovenous malformation, congenital heart disease, resulting in lateralized EEG findings were, therefore, excluded.

The EEG studies were repeated as frequently as possible to evaluate the duration of the EEG abnormalities. The clinical and laboratory findings were obtained by reviewing the hospital records of these patients. After discharge from the hospital, most of the patients were followed by periodic EEG examinations at which time they were examined clinically by the author and the parents questioned for the intellectual and motor performances and recurrences of epileptic seizures. The followup information on a few patients who could not be examined personally was obtained by correspondence and from the records of their visits to the outpatient clinics.

Results

There were 11 boys and 9 girls. Their ages at the onset of seizures...