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SEIZURE DISORDERS

LEARNING DISABILITIES IN EPILEPSY

Neurophysiological mechanisms by which epilepsy may interfere with learning ability are reviewed from the Department of Clinical Neurophysiology, Maudsley Hospital, and Department of Psychology, Middlesex Hospital, London, England. Five mechanisms are listed: 1) Disruption of ongoing processing by epileptiform activity that interferes with attention to incoming information, its storage or retrieval; 2) disruption of storage and retrieval of information by discharges temporally distant from the learning experience; 3) permanent damage to neural tissue; 4) antiepileptic drug toxicity; 5) disruption of brain function by chronic frequent discharges during sleep. Subclinical generalized spike wave discharges may be accompanied by transitory cognitive impairment demonstrable by psychological testing during EEG recording. Left-sided focal spiking produces errors on verbal tasks whereas right-sided discharges impair handling of non-verbal material. Subclinical discharges may disrupt educational skills in children and impair driving performance in motorists. Suppression of discharges by antiepileptic drugs may improve psychological functioning. Spike wave monitors may find a place in special schools to alert teachers to a child's absence attacks. (Binnie CD et al. Learning disabilities in epilepsy: Neurophysiological aspects. Epilepsia 1990; 31 (Suppl 4):S2-8).

COMMENT. The above article is the first in a report of the Symposium on Epilepsy and Education at the XVIIIth International Epilepsy Congress, New Delhi, India, October 1989. Other reports in this Epilepsia supplement include references to epileptic syndromes and cognitive functioning (Dam M); effects of antiepi-

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leptic drugs (Trimble MR); the EEG in assessing cognitive function (Stores G); and the effects of discontinuation of antiepileptic drugs on cognition (Blennow G et al). Community based studies in the United Kingdom have shown that up to 30% of children with epilepsy underachieved in school and many are referred for special education.

COGNITIVE EFFECTS OF CARBAMAZEPINE AND PHENYTOIN: REANALYSIS

A previous report from the University of Washington School of Medicine, Seattle, WA that carbamazepine had fewer adverse neuropsychological effects than phenytoin has been re-evaluated. When patients with disproportionately high phenytoin levels were excluded, the neuropsychological differences originally reported could not be demonstrated by statistical analysis. (Dodrill CB, Troupin AS. Neuropsychological effects of carbamazepine and phenytoin: A reanalysis. Neurology Jan 1991; 41:141-143).

COMMENT. Two additional studies have found no definite adverse cognitive effects that could be related to phenytoin (Meador KJ et al. Neurology 1990; 40:391-394; Dodrill CB, Temkin NR. Epilepsia 1989; 30:453-457). The authors comment that many studies reporting adverse cognitive effects of phenytoin use computerized tests heavily loaded with motor speed. When the motor speed element is factored out, the cognitive effects also disappear.

Cognitive function in relation to time-of-day variation in serum carbamazepine concentration in epileptic patients is reported from the Neuropsychology Laboratory, Department of Psychosomatic and Behavioral Medicine, Rikshospitalet, Oslo, Norway (Reinvang I et al. Epilepsia Jan/Feb 1991; 32:116-121). Patients had been seizure-free for at least one month and took 2 daily CBZ doses. The test battery showed no differences between performance at times of high versus low serum concentrations. A 33% fluctuation in CBZ concentrations during the day was significant. The subjects were mainly adults and different results might be obtained in children.

CARBAMAZEPINE RASH AND PREDNISONE

The use of prednisone in the treatment of carbamazepine-induced rash in 20 patients is reported from the Divisions of Neurology and Allergy and Immunology, Danbury Hospital, Danbury, CT. Fifteen were female and 5 were male. Their ages ranged from 4½ to 73. In 16 patients the rash was suppressed and carbamazepine was continued; the drug had to be discontinued in four patients, 2 of whom had developed fever. (Murphy JM et al. Suppression of carbamazepine-induced rash with prednisone. Neurology Jan 1991; 41:144-145).

COMMENT. Fifty cases of serious skin reaction related to carbamazepine have been reported to CIBA-GEIGY in an eight year period, 1982-89 (personal communication), with an estimated