

was arrested at an immature stage. The learning disability associated with bilateral prefrontal lesions acquired early in life is characterized by deficits in maturation of judgment, insight, foresight, abstract reasoning, perspective taking, empathy, and moral development. The predominantly behavioral presentation in the absence of focal neurological signs may lead to the erroneous impression that the underlying factors are primarily psychiatric or environmental. The EEGs of both patients were normal whereas the MRIs showed bilateral frontal lobe lesions. The WAIS-R was average in one patient and borderline to low average in the second patient.

Mesulan M-Marsel, an author of the above paper, writes in Neurologic Progress (Ann Neurol Nov 1990; 28:597-613) on "Large-scale neurocognitive networks and distributed processing for attention, language, and memory." The neurons of the CNS operate to receive sensory signals from outside and from within (input), they plan and execute motor acts (output), and govern intermediary processing between input and output. Thought, language, selective attention, memory, and advanced cognition and comportment are the products of intermediary processing networks located primarily in limbic and association areas. Complex behavior is mapped at the level of multifocal neural systems rather than specific anatomical sites and give rise to brain behavioral relationships that are both localized and distributed. Anatomical channels transfer information content and chemical pathways modulate behavior.

READING ABILITY AND BEHAVIOR IN ADOLESCENTS WITH EPILEPSY

Thirty-four adolescents with epilepsy, controls matched for age, sex, and general ability, were studied at the University Hospital, Cardiff, Wales. Adolescents with epilepsy had more difficult behavior in class, competitive sports were less popular and comprehension of reading material was significantly lower than that of control groups. The lowest reading scores were found in adolescents with myoclonic seizures, partial seizures with secondary generalization, or generalized tonic-clonic seizures. The low reading scores were also correlated with the EEG findings including 2 per second spike and wave, photosensitivity, generalized slow waves, or nonspecific generalized spike and wave. Problems in reading comprehension correlated with right focal slow wave, sharp waves, and spikes.

The effects of anticonvulsants on reading and behavior were also investigated. Higher reading scores were seen with ethosuximide and lower scores with benzodiazepines. The Rutter Behavior Scale was significantly higher in patients taking phenytoin indicating less good behavior in this subgroup. The lowest Rutter score occurred in the ethosuximide patients. (Clement MJ, Wallace SJ. A survey of adolescents with epilepsy. Dev Med Child Neurol Oct 1990; 32:849-857).

COMMENT. This study shows that adolescents with epilepsy can attend school and lead full lives but they may have problems with comprehension of reading material and with behavior. The value of the EEG in predicting poor reading ability has been demonstrated and the recognition of localized cerebral lesions by MRI would be of additional interest. Correlations of the behavior and reading ability with degree of seizure control and efficacy of anticonvulsants might be pertinent.

A follow-up study of intractable seizures in childhood is reported by Huttenlocher PR and Hapke RJ (Ann Neurol Nov 1990; 28:699-705) from the University of Chicago. There were no clear outcome differences related to seizure type except for a slightly worse prognosis in children with predominantly myoclonic seizures. A major finding of this study was the association between intractable seizures in childhood and mental retardation. The assumption that either seizures themselves or the anticonvulsant drugs may depress intelligence has prompted an increased interest in the effects of surgical treatment early in life. However, the reports of improvement in cognition after surgery are not well documented.

NEUROPATHOLOGY OF DEVELOPMENTAL DYSLEXIA

The brains of three women with dyslexia were examined at the Dyslexia Research Laboratory, Beth Israel Hospital, Harvard Medical School, Boston, MA. The findings were similar to those reported previously from the same laboratory in four men with developmental dyslexia. The planum temporale was symmetrical, multiple foci of cerebrocortical glial scarring were present in two, and all three cases showed brain warts, molecular layer ectopias, and focal dysplasia. Two women had primary brain neoplasms and two showed small angiomas. The microscopic abnormalities were dated to the periods of late neural migration and cortical maturation. A causal connection between the pathoanatomical findings and the cognitive disorder could not be established. However, it is postulated that the dyslexic individual begins with a familial predisposition to dyslexia which is expressed through a propensity to develop symmetrical temporal plana. The presence of many foci of microdysgenesis in the territory of perforating cortical arterioles suggests the possibility of a microangiopathic etiological process. (Humphreys P et al. Developmental dyslexia in women: Neuropathological findings in three patients. Ann Neurol Dec 1990; 28:727-738).

COMMENT. The authors invoke an immunopathogenic mechanism for the cortical scars and neuronal ectopias seen in their neuropathological studies of dyslexics. They cite systemic lupus erythematosus in the mother as a possible cause for the microvascular cerebral pathology in the dyslexic offspring. The multifocal microscopic myelinated scars demonstrated in the three dyslexic women subjects were considered similar to the cortical