

ENDOCRINE DISORDERS INDUCED BY ANTIEPILEPTIC DRUGS

Endocrine disturbances in adolescent women with epilepsy, and the effects of antiepileptic drugs (AEDs) and hormonal contraception are discussed by a pediatric neurologist and epileptologist at the Children's Hospital of Wisconsin, Milwaukee, WI. AEDs that induce hepatic microsomal enzymes and may interact adversely with hormonal contraception include carbamazepine, phenobarbital, phenytoin, and primidone. AEDs that do not interact adversely with hormonal contraception are the P-450 enzyme inhibitors, valproate and zonisamide, and non-inhibitors, gabapentin, lamotrigine, levetiracetam, and vigabatrin. Concurrent use of hormonal contraception and AEDs does not lead to increased seizure frequency. Increased estrogen doses (>50 mcg) in patients treated with enzyme-inducing AEDs may further reduce the risk of unintended pregnancy. AEDs that have no effect on hepatic microsomal enzymes are preferred. Treatment with enzyme-inducing AEDs may increase the risk of sexual dysfunction, irregular menstruation, and ovulatory failure in women with epilepsy. Treatment with the enzyme inhibitor valproate may increase the risk of anovulatory menstrual cycles, polycystic ovarian syndrome, and hyperinsulinemia. Enzyme-inducing AEDs increase metabolism and protein binding of estrogen and progesterone, respectively, but do not significantly increase the failure rates of hormonal contraception. Counseling for adolescents on reproductive health issues is particularly important in patients with epilepsy. Supplements of folic acid, calcium, and vitamin D are recommended. (Zupanc ML. Antiepileptic drugs and hormonal contraceptives in adolescent women with epilepsy. *Neurology* March 2006;66(Suppl 3);S37-S45). (Reprints: Dr Mary L Zupanc, Children's Hospital of Wisconsin, 900 West Wisconsin Ave, PO Box 1997, Milwaukee, WI 53201).

COMMENT. While seizure control is the primary consideration, birth control and the inter-relation of AEDs and hormonal contraception are important in the treatment of the adolescent female patient with epilepsy. The frequency of depression in women with epilepsy and the need for early identification of at risk patients is emphasized in this supplement concerning the adolescent female with epilepsy. (Harden CL et al. *Neurology* 2006;66(Suppl 3);S3-S4).

ATTENTION DEFICIT DISORDERS

PERVASIVE DEVELOPMENTAL DISORDER AND ADHD

The relationship between patients with attention deficit hyperactivity disorder (ADHD) and those with pervasive developmental disorders (PDD) was studied at Okayama University Graduate School of Medicine, Japan. Using the High-Functioning Autism Spectrum Screening Questionnaire (ASSQ) and ADHD Rating Scale-IV, the ASSQ scores of the PDD group (9 boys and 6 girls; 5-13 years) and ADHD group (19 boys and 1 girl; 5-15 years) were significantly higher than the control normal group (38 boys and 2 girls; 5-15 years); and the PDD group scored higher than the ADHD group. The WISC-III Full Scale IQ was average and similar in the 2 test groups. Both groups had higher scores than controls in each of the three behavioral disorders on the ASSQ: reciprocal social interaction, verbal and

nonverbal communication and imaginative activity, and restricted and repetitive behavior. The PDD and ADHD group had similar scores in communication problems and restricted and repetitive behavior. PDD patients had a higher score than the ADHD group only in the social interaction impairment. In total score, inattention score, and hyperactivity/impulsivity score on the ADHD Rating Scale-IV, both groups were significantly higher than the control group; ADHD and PDD groups showed similar scores in the three ADHD subtypes. ADHD patients had many PDD-related symptoms, and PDD patients had many ADHD-related symptoms. Diagnoses of ADHD and PDD were difficult to distinguish when using the DSM-IV criteria, and an individual patient should be evaluated using both questionnaires. (Hattori J, Ogino T, Abiru K, et al. Are pervasive developmental disorders and attention-deficit/hyperactivity disorder distinct disorders? *Brain Dev* June 2006;28:371-374). (Respond: Dr Junri Hattori, Department of Child Neurology, Okayama University Graduate School of Medicine and Dentistry, Shikata-cho 2-5-1, Okayama 700-8558 < Japan).

COMMENT. Although patients with PDD, according to DSM-IV criteria, were excluded from the ADHD group, the ASSQ total score in the ADHD group was higher than in the control group. Also, all three behavioral category scores in the PDD diagnosis (social interaction, communication problem, and restricted and repetitive behavior) were higher in the ADHD group than in the control group. The ADHD group included subjects whose PDD-related symptoms did not reach the threshold for PDD diagnosis, based on DSM criteria. Social interaction was the only domain in PDD criteria that was not significantly impaired in the ADHD group, possibly because at least 2 items are required whereas one will suffice in the other domains. In our ADD Neurology Clinic at Children's Memorial Hospital, Chicago, we also have been impressed with the prevalence of symptoms of autism complicating ADHD cases. Sometimes, these symptoms are only apparent after completing a simplified questionnaire for ASD with the parent, leading to more adequate and individualized behavioral and educational intervention. The reported prevalence of autistic spectrum disorder has increased from as few as 4 per 10,000 children in the 1980s to as many as 50 per 10,000 today (Rivara FP. *Arch Pediatr Adolesc Med* May 2006;160:548).

FACTORS THAT INFLUENCE FREQUENCY OF ADHD DIAGNOSIS

Factors associated with the probability of attention-deficit/hyperactivity (ADHD) diagnosis among third grade US elementary school children were investigated in a nationally representative sample of 9278 children in the 2002 follow-up of the Early Childhood Longitudinal Survey Cohort conducted at University of Texas, Austin, TX. In a total of 5.44% children diagnosed with ADHD, the means of several variables differed in frequency of ADHD diagnosis. Variables associated with a lower risk of ADHD were female gender, black children, and Hispanics; children living with a biological father; the western and southern regions vs midwestern US; having a white teacher, relative to a nonwhite teacher; and attending a Catholic vs public school. ADHD diagnosis was more frequent in children born in summer months; in lower-income families; in children taught by an older teacher; and in schools subject to stricter state-level performance accountability laws. Larger class sizes or state laws that restrict school personnel from discussing ADHD treatment options with parents were not influencing factors. (Schneider H, Eisenberg D. Who receives a diagnosis of attention-deficit/hyperactivity disorder in the United States elementary school