

COMMENT. Consistent use of stimulant medication is associated with maintained effectiveness but continued mild growth suppression. A smaller growth suppression effect is observed in patients receiving interrupted treatment. The hypothesis that an initial growth suppression effect will dissipate and growth rebound will occur even when medication is continued through summer vacations, as postulated by Satterfield et al (1979), is not supported by the MTA study. Ultimate adult height (age 16 years in girls and 18 years in boys) is determined by rate of growth as well as length of growth phase. Children in the MTA follow-up phase were between 9 and 11 years of age, before the expected phase of accelerated growth. The authors propose that consistent treatment may reduce the rate but lengthen the duration of growth, so that adult height would be delayed but not reduced. Until more long-term studies are completed, recommendations for stimulant treatment of ADHD should when practical include drug holidays and lowest effective doses.

## EARLY TV VIEWING AND CHILDHOOD ATTENTION DEFICITS

The National Longitudinal Survey of Youth, a nationally representative longitudinal data set, was used at the University of Washington, Seattle, to test the hypothesis that early television exposure (at ages 1 and 3) is associated with attentional problems (AP) at age 7. The hyperactivity subscale of the Behavioral Problems Index was determined as the main outcome measure, and >1.2 standard deviations above the mean classified the children with attentional problems. Hours of TV exposure daily at ages 1 and 3 years were the main predictor of AP at 7 years. Ten percent of children (1278 at age 1 and 1345 at age 3) had attentional problems at age 7, and hours of TV viewed per day at both ages were associated with AP. A 1-SD increase in number of hours of TV viewing at age 1 and 3 is associated with a 28% increased in probability of AP at age 7. (Christakis DA, Zimmerman FJ, DiGiuseppe DL, McCarty CA. Early television exposure and subsequent attentional problems in children. *Pediatrics* April 2004;113:798-713). (Reprints: DA Christakis MD, MPH, Child Health Institute, 6200 NE 74<sup>th</sup> St, Ste 210, Seattle, WA 98115).

COMMENT. Limitations to this study outlined by the authors include the following: 1) The measure used for attentional problems is not necessarily indicative of ADHD and the results do not prove a relation between TV and ADHD; 2) parental reports of TV viewing times were relied on; 3) attentional problems caused by parental neglect may have lead to excessive TV viewing; 4) the content of the TV programs was unknown, and some programs may be more detrimental than others. Future studies should quantify more specifically the diagnosis of "attentional problem" (Healy JM. Commentary. *Pediatrics* 2004;113:917-918).

Aggressive behavior and obesity have previously been linked to excessive TV and video game use (Robinson et al, 1993, 1999, 2001). Limiting TV exposure in formative years of brain development, as recommended by the American Academy of Pediatrics (none for children <2 years old, no more than 1-2 hours a day for older children), may reduce children's subsequent risk of developing ADHD. It should be stressed, however, that multiple factors are involved in the etiology of ADHD, genetic and environmental, and the syndrome was well known in the pre-television era.

**Early experience and brain function and structure** were investigated in 30 preterm infants (14 controls and 16 experimental) at Children's Hospital, Boston, MA (Als H, Duffy FH, McAulity GB et al. *Pediatrics* April 2004;113:846-857). The Newborn Individualized Developmental Care and Assessment Program (NIDCAP) was initiated within 72 hours of admission to the intensive care unit and continued to age 2 weeks, corrected for prematurity. The experimental group showed significantly better neurobehavioral functioning at 2 weeks and 9 months assessments. Magnetic resonance diffusion tensor imaging and other tests demonstrated better function and more mature fiber structure for experimental infants compared to controls. Quality of experience before term may accelerate brain development in preterm infants.

## COGNITIVE SIDE EFFECTS OF ANTIEPILEPTIC DRUGS

Available studies of the cognitive side effects of traditional and newer antiepileptic drugs (AEDs) are reviewed by researchers at Georgetown University Medical Center, Washington, DC. Relatively few studies in children have meaningful results, most having used global IQ as the primary dependent measure, which may not demonstrate subtle neuropsychological changes. Furthermore, design limitations do not allow firm conclusions about AED cognitive effects. Of older AEDs, phenobarbital (PB) has more negative effects on cognition than valproate (VPA) or carbamazepine (CBZ). PB may decrease IQ, due in part to decreased processing efficiency and poorer attention. The declines in speeded performance are largely reversible, but the long-term effects on academic achievement may be permanent. CBZ does not affect global IQ but it may have a negative effect on memory. Phenytoin (PHT) has a smaller effect on IQ than does PB and its effects on memory are similar to those of CBZ. Effects of VPA on IQ, memory, and academic achievement are dose-dependent but less severe than those of PB, CBZ, and PHT. VPA can be effective in treating disruptive children with explosive temper and mood lability.

Newer AEDs have not been tested using formal neuropsychological methods. Children taking gabapentin (GBP) are at risk for behavioral changes, including hyperactivity, irritability, agitation, and aggression, especially in the mentally retarded. Lamotrigine (LTG) in mentally retarded children with epilepsy is also associated with aggressive behavior, but improved behavior and alertness are reported in children with tuberous sclerosis. Autistic behavior is also improved following LTG, even without seizure control. Levetiracetam (LEV) has conflicting effects on behavior, some studies reporting somnolence and emotional instability, and others finding improvements in cognition, alertness, and behavior. Patients with autism and seizures were also benefited by LEV. Oxcarbazepine (OXC) is associated with somnolence, but no effect on IQ and less nervousness. Topiramate (TPM) may cause emotional lability, fatigue, inattention, and impaired memory, despite improved seizure control. Vigabatrin (VGB) causes visual field constriction in patients with infantile spasms, particularly those with tuberous sclerosis, and is not approved for use in the US. Cases of acute encephalopathy and acute reversible psychosis are reported with VGB. A higher risk of psychotic episodes and obsessive-compulsive disorder is present with zonisamide (ZNS), and symptoms may develop even after prolonged treatment. (Loring DW, Meador KJ. Cognitive side effects of antiepileptic drugs in children. *Neurology* March (2 of 2) 2004;62:872-877). (Reprints: Dr David W Loring, Department of Neurology, Georgetown University Medical Center, 4000 Reservoir Rd NW, Building D, Suite 207, Washington, DC 20057).