

# PEDIATRIC NEUROLOGY BRIEFS

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### ATTENTION DEFICIT AND COGNITIVE DISORDERS

#### NIMH TREATMENT STUDY OF ADHD FOLLOW-UP

The effects of changes in medication use between 14 and 24 months follow-up on effectiveness (symptom ratings) and growth (height and weight measures) were analyzed, comparing 4 groups of patients, in the Multimodal Treatment Study of ADHD (MTA) reported by the MTA Cooperative Group. The patient groups were as follows: 1) treated with medication alone (Med Mgt), 2) combined medication/behavior modification (Comb), 3) behavior modification alone (Beh), and 4) community comparison (CC). Changes in medication use between 14 and 24 month follow-up formed 4 subgroups: Med/Med, Med/NoMed, NoMed/Med, and NoMed/NoMed. The Comb and Med/Mgt groups that showed the greatest improvement at the end of the 14 month treatment phase had deteriorated at 24 month follow-up whereas the Beh and CC groups showing a lesser response at 14 months had not deteriorated by 24 months follow-up. No significant differences in the 14- to 24-month growth rates were recorded among the 4 randomly assigned groups, whereas significant growth suppression had occurred in the Comb and Med/Mgt groups after 14 months of the treatment phase. Changes in medication use in the 14-24 month follow-up phase were associated with changes in ADHD and ODD symptom ratings: the subgroup stopping medication (MED/NoMed) showed the largest deterioration, the subgroups with continuous medication (Med/Med) or no medication (NoMed/NoMed) showed modest deterioration, and the subgroup starting medication (NoMed/Med) showed improvement in ADHD symptoms. The group with consistent medication use (Med/Med) showed reduced growth rate compared to the group on no medication (NoMed/NoMed) which showed accelerated growth compared to population norms. (MTA Cooperative Group. National Institute of Mental Health Multimodal Treatment Study of ADHD follow-up: Changes in effectiveness and growth after the end of treatment. *Pediatrics* April 2004;113:762-769). (Reprints: James M Swanson PhD, University of California, Irvine,

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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.