

# PEDIATRIC NEUROLOGY BRIEFS

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J. GORDON MILLICHAP, M.D., F.R.C.P., EDITOR

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### ATTENTION DEFICIT DISORDERS

#### GROWTH AND WEIGHT DEFICITS IN ADHD

The hypothesis that stimulant medications may cause growth deficits in children with attention deficit hyperactivity disorder (ADHD) was reevaluated in 124 children and adolescents with ADHD and 109 controls at the Massachusetts General Hospital, Boston, MA. Small, significant deficits in height (average, 3 cm) were found in early but not late adolescent ADHD children, and height deficits were unrelated to weight deficits or stimulant treatment. In 10% of ADHD children cf 1% of controls, height deficits were more than 2 standard deviations (approx 14 cm in 15-yr-old males) below the average height of controls. The larger growth deficits occurred in patients with comorbid major depression but not in those with anxiety disorders. Neither recent nor past history of stimulant therapy significantly affected height measures in either early or late pubertal ADHD children. Pubertal development and weight measures of ADHD children were not different from controls. (Spencer TJ, Biederman J, Harding M, O'Donnell D, Faraone SV, Wilens TE. Growth deficits in ADHD children revisited: evidence for disorder-associated growth delays? J Am Acad Child Adolesc Psychiatry Nov 1996;35:1460-1469). (Reprints: Dr Spencer, Pediatric Psychopharmacology Unit (ACC 725), Massachusetts General Hospital, Fruit Street, Boston, MA 02114).

COMMENT. ADHD may be associated with a temporary delay in the rate of growth in height in early adolescence that may be corrected by late adolescence. ADHD-associated height deficits are unrelated to stimulant-associated weight loss and may represent a manifestation of ADHD, mediated by a maturational delay. The dysmaturity hypothesis of ADHD, usually confined to neurobehavioral and attentional deficits, may be extended to physical deficits that can be outgrown. Small weight deficits in some ADHD children receiving stimulant therapy can usually be offset by adjusting the timing of medication and by food supplements if indicated.

In a Northwestern University, prospective study of the growth of 36 boys with ADHD, 5 to 10 years of age, who were treated with methylphenidate,

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only 2 had a significantly decreased rate of annual growth, compared to normal growth patterns of children of the same age group. In 6 children under 8 years of age the growth rate was significantly increased. (Millichap JG. Growth of hyperactive children treated with methylphenidate: a possible growth stimulant effect. In: Learning Disabilities and Related Disorders. Chicago, Year Book Med Publ, 1977) (Millichap JG, Millichap MG. Growth of hyperactive children. N Engl J Med 1975;292:1300).

Predictors of weight loss in children with ADHD treated with stimulant medication were studied retrospectively at the Schneider Children's Hospital, New Hyde Park, New York. (Schertz M et al. Pediatrics Oct 1996;98:763-769). Using body mass index as a measure, pretreatment weight was a significant predictor of stimulant-related weight loss, heavier children losing more weight than thinner children. In overweight ADHD children, stimulant medication may provide a secondary benefit, improving self-esteem.

### **METHYLPHENIDATE DOSING SCHEDULES**

Efficacy and side effects of twice daily (bid) and three times daily (tid) methylphenidate (MPH) dosing schedules (mean dose, 8 mg, 0.3 mg/kg) in 25 boys with attention deficit hyperactivity disorder (ADHD) were compared in a 5-week, placebo-controlled, crossover evaluation at the Departments of Psychiatry and Pediatrics, University of Chicago. Three times daily dosing provided greater improvement than the bid schedule on Hyperactivity/Impulsivity Conners Parent and Teacher Rating scales. Compared to placebo, appetite and total sleep time were adversely affected by tid dosing but not bid schedules. The incidence of side effects with tid compared to bid dosing was not significantly different. No effect on weight was noted in this short time period. (Stein MA, Blondis TA, Schnitzler ER, Roizen NJ et al. Methylphenidate dosing: twice daily versus three times daily. Pediatrics Oct 1996;98:748-756). (Reprints: Dr Mark A Stein, Section of Child and Adolescent Psychiatry, 5841 S Maryland Ave, Chicago, IL 60637).

COMMENT. This short term study shows that more frequent, smaller dose, three times daily MPH treatment is often preferable to twice daily dosing schedules. The incidence of insomnia, usually regarded as a disadvantage of afternoon doses, is not increased, and teacher and parent ratings of MPH efficacy are benefited. Doses of MPH for ADHD should be selected for each individual child according to the time of occurrence of symptoms and not with regard to the pattern of possible side effects. An evening free from parent-child conflict and a home-work assignment satisfactorily completed may lead to improved self esteem and better classroom performance. Closer monitoring of MPH dosing schedules, using both parent and teacher abbreviated reports, should result in optimal treatment efficacy.

The benefits of a group treatment developmental approach, involving patients and their families, as a supplement to medication, are reported from the Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, CA. (Lock J. Developmental considerations in the treatment of school-age boys with ADHD: an example of a group treatment approach. J Am Acad Child Adolesc Psychiatry Nov 1996;35:1557-1559).

### **CARDIOVASCULAR EFFECTS OF TRICYCLIC ANTIDEPRESSANTS**

Twenty-four pediatric studies, published from various centers between 1967 and 1996, involving 730 children and adolescents treated with imipramine, amitriptyline, desipramine, or nortriptyline, were surveyed for