ADHD Drug Dosage Cut by Behavioral Therapy

The low level of side effects produced by lower doses could put behavior modification in the spotlight.

BY HEIDI SPLETE
Senior Writer

WASHINGTON — Behavior modification can reduce the level of medication needed in school-aged children with attention-deficit hyperactivity disorder, William E. Pelham Jr., Ph.D., said at the annual meeting of the Association for Behavioral and Cognitive Therapies.

Few studies have addressed the issue of how behavioral and pharmacologic therapies should be sequenced in children, said Dr. Pelham, a professor of pediatrics and psychiatry at the State University of New York, Buffalo.

Dr. Pelham and his colleagues have completed two studies funded by the National Institutes of Health that examined dosing and sequencing of behavior modification and medication. "We measured impairment—not core symptoms—because impairment is what you want to focus on; that is what causes the most problems for kids," said Dr. Pelham, who is also a professor of psychology at the university.

The first study included 154 children aged 5-12 years (130 boys and 24 girls) who participated in a summer day camp program. They were divided for 3 weeks into three behavior modification groups—no behavior modification, low-intensity behavior modification, and high-intensity behavior modification. In addition, the children were divided into four dosage groups for methylphenidate (placebo, 0.15 mg/kg, 0.3 mg/kg, and 0.6 mg/kg, three times daily).

Medication was randomized each day, and the program counselors recorded the children's behavior in areas such as failing to comply with staff requests, following activity rules, and exhibiting conduct problems.

When the data were reviewed at summer's end, the lowest dose of medication—0.15 mg/kg three times daily—had a surprising and substantial effect on reducing ADHD impairment. In fact, the maximum incremental value of medication to behavior modification occurred at this low dose.

"There was no incremental value for most children beyond the 0.15-mg/kg dose in combination with behavior modification, but the highest dose—0.6 mg/kg—produced the largest effects in the absence of behavior modification," Dr. Pelham said. This dosage normalized the largest number of children when combined with behavior modification. The effects of behavior modification alone and medication alone were comparable.

"Medication alone does not normalize the children's performance," he explained. "Even at the highest dose of 0.6 mg/kg three times daily, many children were not normalized; the effect of behavior modification is as strong as the effect of medication." Lower doses produce a substantially lower level of side effects—a benefit of using behavior modification as the first-line intervention.

Parents also evaluated the treatment conditions; they ranked a high level of behavior modification therapy, either alone or in combination with medication, as their first choice for managing ADHD, compared with medication alone or with a lower level of behavior modification alone.

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The investigators conducted a follow-up study to assess the effectiveness of sequencing medication and behavior modification in a school setting. The primary outcome measure was the maintenance of acceptable behavior without medication after summer exposure to both medication and behavioral therapy.

The study included 128 of the children from the summer program who were randomly assigned to one of three groups. A total of 44 children received high behavior modification treatment, 43 received low behavior modification treatment, and 41 received no behavior modification treatment.

Overall, nearly twice the number of children who received some level of behavior modification remained off medication at school during the fall semester, compared with children who received no behavior modification (60% vs. 30%).

In addition, about 80% of children who had received behavior modification remained off medication at home. A caveat, however, was that almost all the children (75%) had been taking medication before enrollment in the summer study, which influenced their ability to remain unmedicated, Dr. Pelham noted.

Children who received no behavior modification started taking medication during the school day after 13 weeks, compared with 19 weeks for the low-intensity behavioral therapy group and 20 weeks for the high-intensity behavioral therapy group. Similarly, children who received no behavior modification therapy started taking medication at home after 27 weeks, compared with 38 weeks for the low behavior modification group and 32 weeks for the high behavior modification group.

Future research will include younger, medication-naive children, recruited at age 5-6 years, he said. "If we could use a low level of behavior modification therapy in this group, we may be able to keep them off medication," Dr. Pelham said.

Dr. Pelham has been a consultant, scientific adviser, speaker, and grant recipient for the following companies: McNeil Consumer Healthcare/ALZA (developers and marketers of the methylphenidate product known as Concerta), Abbott, Shire, Noven, Eli Lilly, and Cephalon. ■

Keep Eye Out for Slowing of Growth With Stimulants in Some Patients

NEW YORK — Significant growth slowdown during treatment with stimulants may occur in a small subset of children who require closer monitoring and referral, Dr. Harold E. Carlson said at a psychopharmacology update sponsored by the American Academy of Child and Adolescent Psychiatry.

"It's pretty well established that children who receive stimulants, typically for [attention-deficit hyperactivity disorder], can have some slowing of their growth," said Dr. Carlson, head of endocrinology at the State University of New York at Stony Brook.

Height velocity, or yearly growth, typically slows for the first few years of stimulant therapy and then resumes at a nearly normal rate. Pubertal development is normal.

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Final adult height is usually normal with long-term use of stimulants. However, a small subset of patients, perhaps 10%, has a more significant slowdown of growth, Dr. Carlson said.

"I don't think anybody has a good handle on how many [children experience this significant slowdown], and we certainly don't have a good idea as to how to identify them ahead of time," he said.

Because the secretion of growth hormone in these children is normal, researchers have speculated that the slowdown may be related to a decrease in food intake during stimulant use. "That's probably it," Dr. Carlson suggested, because "people on stimulants, especially on higher doses, often lose their appetite."

The slowdown of growth is greater in prepubertal children, boys, children who are taller or overweight at baseline, and children who use sustained-release medications.

Little data exist on the final adult height of children who have taken stimulants, Dr. Carlson said. Few studies have extended follow-up beyond 16 years of age for girls and 18 years for boys. In one study, 97 boys aged 4-12 years who were treated with methylphenidate for a mean of 36 months grew to a final adult height at 21-23 years of age that was similar to the final adult height of other males in their family, their community, and unmedicated controls. These data are "reassuring," Dr. Carlson said, but "we want to emphasize that there may well be a subset of children who do have more significant slowing of growth."

Dr. Carlson recommended obtaining prior growth records and measuring the height and weight of children before beginning stimulants. Height and weight should be measured and plotted every 6 months during treatment. A decrease of more than one standard deviation in height for age during treatment should prompt consultation to exclude other disorders such as hypothyroidism or gastrointestinal diseases.

—Jeff Evans

Methylphenidate's Effectiveness for Girls: Quicker but Briefer

TORONTO — Girls respond better to methylphenidate in the morning than boys do, but the drug's effectiveness also wanes more quickly in the afternoon for girls, Dr. Edmund Sonuga-Barke reported in a poster at the joint annual meeting of the American Academy of Child and Adolescent Psychiatry and the Canadian Academy of Child and Adolescent Psychiatry.

"Females may require additional assessments later in the treatment day to determine optimal dose for effectiveness," wrote Dr. Sonuga-Barke of the developmental brain-behavior unit, University of Southampton, England.

Dr. Sonuga-Barke and his colleagues performed a subanalysis of the COMACS study, which compared two extended-release methylphenidate formulations (Concerta and Metadate-CD/Equasym-XL [MCD-EqXL]). The study included 184 children aged 6-12 years, who were randomized to placebo or either of the drugs.

When the gender differences were examined over 12 hours, researchers found that symptoms in both sexes reached a nadir about 1.5 hours after dosing and then slowly increased. Girls had better symptom control in the first 6 hours after dosing than did boys. But girls' symptoms increased more quickly over the 12 hours than boys' symptoms, and by 12 hours after dosing, they had higher symptom scores than did boys. COMACS concluded that MCD-EqXL reduced symptoms better in the morning (up to 6 hours after administration). Concerta produced superior control in the early evening.

—Michele G. Sullivan