Committee on Children With Disabilities  
Committee on Drugs  

Medication for Children With an Attention Deficit Disorder  

BACKGROUND  
In 1975, the AAP Council on Child Health issued a statement on medication for hyperkinetic children. Since that time, the nomenclature for such disorders has changed, as has the knowledge and usage of the medications involved. In this statement the role of medications for hyperactive children is reviewed in light of current nosology. 

In recent years, the term “attention deficit disorder” has become established as a recognized diagnostic category with three major subtypes: (1) attention deficit disorder with hyperactivity, (2) attention deficit disorder without hyperactivity, and (3) attention deficit disorder residual. In 1987, the American Psychiatric Association adopted the new, inclusive term, attention deficit hyperactivity disorder. 

Some clinicians and authors imply that the educational problems in these children are caused by their attention deficit. Although attention deficit disorder may infrequently occur in isolation, it is more commonly manifested as one of a series of symptoms associated with disorders of higher cortical functioning that include disturbances in movement, cognition, communication, and social competence. 

Many educators and physicians do not realize that a differential diagnosis exists for these behaviors much as it does for any other complex of symptoms. To establish an accurate diagnosis, information must be obtained on factors such as: (1) the child’s birth, developmental, family, medical, psychosocial, and scholastic history; (2) sensory screening (ie, vision and hearing), and (3) a physical, neurologic, and neuromaturational examination. 

As was originally stated by the Council on Child Health,

The use of drug therapy in the management of the hyperkinetic child does not differ appreciably from drug therapy in other treatable maladies. In both instances prescription drugs should be prescribed only by appropriately licensed physicians. Although the screening of patients may frequently be done by other disciplines, the ultimate selection of patients to be treated remains the responsibility of the prescribing physician. 

INDICATIONS AND USE OF MEDICATION  
Medication may be indicated when a child manifests signs of an attention deficit such as short attention span, easy distractibility, impulsive behavior, restlessness, and overactivity that interferes with his or her ability to learn. Such symptoms may result, in academic failure, inability to fulfill intellectual potential, or socially maladaptive behavior leading to impoverished interpersonal relationships. 

Drug therapy is considered by some to be a panacea or cure-all. Educators sometimes recommend that a child be medicated for attention deficit disorder. Unfortunately, some children are treated with a stimulant drug for prolonged periods of time without an adequate diagnostic evaluation or follow-up. Evaluating the effects of therapy on a regular basis must be part of any treatment plan. 

Medication for children with attention deficit disorder should never be used as an isolated treatment. Proper classroom placement, physical education programs, behavior modification, counseling, and provision of structure should be used before a trial of pharmacotherapy is attempted. This integrated approach should continue once the medication has begun. Medication should never be used unless it is clearly indicated for a child with an attention problem that significantly affects school performance or that is associated with a significant behavior disorder.
RECOMMENDED DRUGS AND DOSAGE LEVELS

The medications used most effectively and frequently in the treatment of attention deficit disorder are the stimulants methylphenidate hydrochloride, dextroamphetamine sulfate, and pemoline. These drugs result in significant improvement in 70% to 80% of affected children.3,5,6 The recommended initial dose usually given twice daily for methylphenidate is 0.3 mg/kg with a gradual increase to 0.6 mg/kg. The maximum dose, if required, is 0.8 mg/kg. Most investigators have demonstrated that doses of methylphenidate greater than 1.0 mg/kg may cause a decreased performance in attention testing and memory.3 Attention components and behavioral changes should be closely monitored at home and at school. The use of a qualitative rating scale as a baseline for behavioral observations is advisable before starting treatment and should be continued thereafter on a regular basis.3,5,7

Dextroamphetamine and methylphenidate are manufactured as short- and long-acting medications. (The recommended dose of dextroamphetamine is one half that of methylphenidate.) When using the short-acting form, it is often necessary to add additional doses at noon or later in the day. Recently, methylphenidate has also become available in a sustained release tablet. Results with these long-acting preparations have generally been disappointing. They offer no clear benefit over the short-acting preparations.3

Pemoline, when administered at a dose of 2.25 mg/kg/24 h, seems to be as effective as methylphenidate and dextroamphetamine. It is given once a day in the morning and takes up to 3 to 4 weeks to achieve a clinical effect.

OTHER POTENTIALLY USEFUL DRUGS

Tricyclic antidepressants also ameliorate the symptoms of attention deficit in selected patients.9 The most commonly used drugs are imipramine and desipramine. These do not seem to work as consistently in young children as do the stimulants. However, tricyclic antidepressants may be helpful and more useful than continued administration of stimulants in older children and young adults who have become withdrawn and depressed after experiencing years of school failure or poor social adjustment.

ADVERSE EFFECTS

The two most common side effects of stimulant medications are transient wakefulness at night and loss of appetite. Abnormal involuntary movements and depression may also occur. There was fear that stimulant medications would lead to growth retardation10; however, growth suppression is only minimally related to stimulant dosage.11 Results of a study indicated that no growth suppression occurred at doses of methylphenidate up to 0.8 mg/kg during a prolonged period.12 Other research has shown that methylphenidate does not cause an alteration in the hypothalamic-pituitary-somatotropin axis.13

Pemoline may cause a hypersensitivity reaction and abnormal liver function test results.

Stimulant drugs can exacerbate the symptoms of other disorders. Among these conditions are multiple tic disorders (eg, Tourette syndrome),14 psychiatric disorders (eg, schizophrenia and depression), and pervasive developmental disorders, including autism.

Drug holidays on weekends and summers have been suggested for some children. The premise is to maximize the effect of the medication when it is most needed while minimizing any possibility of interference with growth. Because the symptoms of attention deficit disorder may not disappear during vacations or weekends, one must prescribe on an individualized basis. Medication should be continued when the child’s impulsiveness, activity, and other traits result in significant socially maladaptive behaviors toward family and peers.

RECOMMENDATIONS

There are definite indications for drug therapy in the treatment of attention deficit disorder. Careful evaluation of patients is essential for drug treatment. Monitoring and follow-up both at school and at home are vital; pediatricians must work in concert with parents, principals, teachers, special educators, and school nurses. In view of requests from other professionals and school personnel to prescribe medications for hyperkinetic children, pediatricians should be cautious of becoming surrogate prescribers of medications. It is important to remember that “the overall management of school failure may well be a multidisciplinary venture, but the ultimate responsibility for chemical behavior modification is the physician’s.”11

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