What’s all the fuss about Ritalin?

Recently, concerns about the possible overuse of psychostimulants in very young children have been disseminated in both the lay media and professional journals. These derive from the following observations: (1) the perception of a dramatic increase in the use of psychostimulants over the past decade; (2) marked regional, gender, and racial variations in the percentages both of children who are diagnosed with attention-deficit/hyperactivity disorder and of children who are treated with psychostimulants; (3) an increase in the number of preschool-aged children who are both diagnosed with ADHD and treated with psychostimulants and other drugs; and (4) a lack of knowledge about the long-term effects of psychostimulants on brain development.

**Psychostimulant Increase**

Although some studies have suggested the prevalence of ADHD at 16% to 17%, communication disorders have been estimated to occur in 15% to 25% of children. All these estimates are probably as far from determining the true occurrence of these conditions as those derived from counts of sometimes intermittent prescription use. As with an equation describing a chemical equilibrium reaction, the presence of an extremely effective treatment (or of readily available reimbursement for a treatment of unproven efficacy) will not unexpectedly contribute both to an increase in the use of that treatment and possibly to more accurate diagnosis. Although not every child who qualifies for a diagnosis of an attention disorder needs a trial of medication, the prescription rate would need to significantly exceed the 10% level before it can be interpreted as prima facie evidence of overuse. Several decades ago, there was an “epidemic” of learning disabilities, and more recently, there has been a “pandemic” of autistic spectrum disorders. For the most part, these increases do not reflect faddish overdiagnosis but rather a recognition of cases that were previously misdiagnosed or just plain missed. Although Goldman et al found little evidence of any “widespread overdiagnosis or misdiagnosis of ADHD or of widespread overprescription of methylphenidate,” Angold et al uncovered some confusing discrepancies between prescription practices and accurate diagnoses in a community setting. Commenting on the latter article, Jensen interpreted this mismatch as not inconsistent with undertreatment as the primary phenomenon.

**Variations in Use**

African Americans apparently have decreased access (by a ratio of 2 to 1) to the benefits of medication. This large difference with respect to race, possibly related to fiscal concerns, needs further investigation. Non-hyperactive girls with attentional disorders remain a similarly under-diagnosed and undertreated group.

**Preschool-Aged Children**

Because ADHD is a life-span problem, the incidence of ADHD in preschoolers should not differ from that in older children. Differential diagnosis may be more challenging, but it is certainly not impossible in these younger children. It might be advisable to withhold a diagnosis of ADHD until the child’s behavior can be observed in a group setting such as preschool, nursery school, or day care. In some states this recommendation is part of the formal policy of the state’s Board of Pharmacy. Indeed, one of the major factors contributing to the increased identification of ADHD in preschool-aged children is the presence of more young children in out-of-home settings while their mothers work.

In view of the paucity of research on the diagnosis and treatment of ADHD in very young children, the pediatrician should proceed with caution. Such caution can be objectified in the collection of behavioral observations from multiple caregivers and in diverse settings, as well as by frequent follow-up visits. The level of caution exercised need, however, be no greater than that employed with the use of “orphan drugs.” The force of analogy applied to developmental phenomena across contiguous age levels can be discussed with families. If the behavioral markers for ADHD can begin in utero, the...
diagnosis and treatment can certainly begin in the preschool years.

Clinical experience does suggest that psychostimulant medication is less effective in preschool-aged children, perhaps because of the greater ratio of liver to body mass and higher metabolic rate or perhaps more simply because of the immaturity of the target organ. This should not preclude a trial. It is important that parents be advised of the lesser efficacy rate so that medication might be reconsidered in a timely fashion when the child is older.

**Long-Term Effects**

Little is known about the long-term effects of psychostimulants on the developing brain. Concern has been raised that both cocaine and methylphenidate target the dopamine transporter and have certain similarities in their action, but their clinical effects have few similarities. Stimulants have been used since the 1930s, the only one to have exhibited any sort of unexpected long-term side effect was pemoline, and that involved the liver rather than the brain. Finally, stimulant use does not predispose to later substance abuse.

**Some Sources of Criticism**

Progress in neuropsychopharmacology is revolutionizing the treatment of a wide variety of conditions previously resistant to behavioral interventions, but not without criticism. Despite a long history, such criticism seems unable to generate any novel arguments. Although the neuroscience of ADHD continues to progress with, for example, the identification of genetic linkages, the same logical fallacies continue to reappear, sometimes under religious guises. How can one make a diagnosis of a “disorder” that is composed of “normal” behaviors? Because the “normal” behaviors appear at an inappropriate time and to an inordinate degree than expected for the child’s developmental age. Can not the setting of such arbitrary developmental expectations simply be modified by the school system? Isn’t the school system lowered expectations enough already? Why resort to drugs when behavioral alternatives would be less damaging? Why choose anesthetics with the availability of meditation techniques? Isn’t this just a problem of parental incompetence and child laziness? That’s called “blaming the victim.” ADHD really does exist, and it can be distinguished from, as well as confused with, parent-child problems, maternal depression, inexperienced teachers, overcrowded classrooms, and a variety of other confounding conditions. Is methylphenidate a type of cocaine? Both chemicals target the dopamine transporter, but their clinical effects have little similarity.

An important subtext in the debate over the use of stimulants in children derives from a discipline known as the sociology of medicine. One of the award-winning standard textbooks in this field describes to college students the horrendous social drama of the “medicalization of deviancy”—the ongoing relabeling of behavioral difference (a normal temperamental variant) as medical disorder in order to place the patient in the grip of a malevolent medical industrial complex. In this scenario, drugs are interpreted as instruments of control. (Note the frequent references to a “chemical straight jacket.”) Such a politicization of neuropsychopharmacology undertcuts everything for which evidence-based medicine stands. It assumes that there is no objective truth and that anything can be modified simply by altering linguistic usage. The extremely deleterious impact such anti-critical thinking can have on the advancement and application of science has been analyzed elsewhere, but its insidious pervasiveness needs to be constantly kept in mind. It represents a quantum leap beyond mere disaffection with “the medical model.”

This critique of psychostimulant use engenders two paradoxes: (1) at the very moment when new research is accumulating evidence to demonstrate that medication not only works but is much more effective than was previously thought, a recurring wave of anti-medication hysteria is unleashed; and (2) most parents are not rushing out to get prescriptions, and most physicians are not eager to write them. Indeed, the majority of both groups actually appear averse to medication use. Even when medication is demonstrated to be more effective than behavioral interventions, parents continue to strongly prefer the latter.

This is not to suggest that all the key issues of neuropsychopharmacology have been resolved and only await the filling in of the blanks by current research programs. The National Institutes of Health–funded Multimodal Treatment for ADHD study is demonstrating the superior impact of stimulant medication, but determination of the most appropriate balance between drugs and behavioral interventions requires further research. Investigators in this multi-site project are currently applying for a 5-year longitudinal continuation to follow up subjects with ADHD through middle school.

**Diagnosis and Treatment**

With and without a complex multidisciplinary team assessment, ADHD is sometimes overdiagnosed but is possibly more often underdiagnosed. Although the magnitude of the error in both directions remains unknown, it is imperative to avoid both errors and not focus exclusively on the overdiagnosis.

As demonstrated by over a half century of clinical experience, psychostimulants exhibit an extremely low risk-to-benefit ratio. Although psychostimulant medication is safe and effective, it is also both overused and underused. Diagnostic errors and in-
complete follow-up are the prime culprits here. Most side effects and other unwanted symptoms are related to dosage titration and can often be effectively managed without discontinuing an otherwise effective preparation. Often because of financial considerations, multimodal treatment components are significantly underused to support the positive impact of medication regimens. The use of psychostimulant medications by community physicians is not as effective as its use by subspecialists.

**RECOMMENDATIONS**

Pediatricians need to assume a proactive role in the screening, diagnosis, and treatment of ADHD: the screening, diagnosis, and treatment of ADHD should be the prerogative of the primary care pediatrician and not the purview of subspecialists and multidisciplinary teams. The majority of cases of ADHD can be managed in an efficient office setting. The physician who does not believe in the existence of ADHD, except in the most severe cases, will not typically diagnose it. That reflects a disservice to the child and the family. The physician who accepts the diagnosis of ADHD but who is reluctant to recommend a trial of medication as one part of the treatment regimen is also guilty of a disservice. The physician who does not titrate the medication dosage to optimal effect performs a further disservice. Refusing to consider treatment of ADHD in preschool-aged children is one final disservice.

In the presence of all this negative press, parents need to be strongly reassured about both the accuracy of the diagnostic process and the efficacy of treatment regimens. Although it goes against the grain of many psychosocial theories and many alternative therapies, there is an overwhelming body of scientific evidence to support the following.

1. ADHD has objective existence as a neurodevelopmental syndrome.37,38
2. Psychostimulants (the “gold standard”) are safe and effective components of a treatment regimen.39
3. With psychostimulants, as with all categories of drugs in pediatrics, there exists some degree of risk for overdose, underuse, and misuse (where the last refers to inappropriate dosage schedules).
4. Other behavioral supports (eg, counseling, peer support groups, classroom accommodations, and 504 plans) remain important in the management of ADHD.
5. Comorbidities (in the form of learning disabilities, language disorders, psychiatric diagnoses, and socio-emotional difficulties) represent a significant area of both concern and potential confounding of treatment efficacy and long-term outcome.
6. The diagnosis and treatment of ADHD in preschool-aged children is challenging but not impossible.
7. ADHD in preschool-aged children represents a probable rather than standard indication for the use of psychostimulants.13

This is the state of the art in scientific medicine. All the rest is myth.

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