

AD/HD Medication and Drug Abuse

Bryan Goodman, MA, with Nora D. Volkow, MD

THE RESULTS OF TWO RECENT STUDIES indicated that treating children as early as age six or seven

with stimulants for attention-deficit/hyperactivity disorder is not likely to increase the risk of substance abuse when they are adults. The studies, both sponsored by the National Institute of Drug Abuse (NIDA) at the National Institutes of Health (NIH), also showed treatment with stimulants did not prevent substance abuse later in adulthood. The studies, conducted by researchers at New York University School of Medicine and the Massachusetts General Hospital/Harvard Medical School were published in the April 2008 issue of the *American Journal of Psychiatry*. Bryan Goodman, MA, executive editor of *Attention* magazine, talked with Nora Volkow, MD, director of NIDA, about what the results of the studies mean to parents and their children with AD/HD.



Nora D. Volkow, MD

What do you see as the newspaper headline for this story?

Methylphenidate treatment for children with AD/HD does not increase their risk for later substance abuse. However, the data also show that treatment does not decrease the risk of substance abuse. This highlights the importance of addressing not only the treatment of AD/HD, but also of implementing prevention or treatment interventions for substance abuse concomitantly.

And the take-away for parents who have children with AD/HD?

As long as their children are properly diagnosed, there does not seem to be any increased risk of their developing substance abuse problems as a result of exposure to stimulant medications during childhood or very early adolescence. That said, more research is needed, especially when medication is started in adolescence (not the focus of these studies) to ensure that this is also the case for this age group. And, because some children with AD/HD do develop problems with substance abuse, it is important to be watchful for early signs, to intervene early if problems start to emerge, and to treat both conditions simultaneously.

The study found that while medication does not seem to increase the risk of drug abuse in adulthood, neither does it decrease the risk of drug abuse at that stage of life. But one would think that treatment with stimulant medication would play some role in preventing people from becoming substance abusers.
Was there any indication from the study why this wasn't the case? Would you care to

offer a hypothesis on why it wasn't?

My hypothesis as to why these studies did not see a benefit in preventing substance abuse in adulthood reflects the fact that treatment of AD/HD with stimulant medications alone may not be sufficient to prevent the risk of drug abuse in many of these children who, because of the disease, are at greater risk for substance abuse.

Why did NIDA think this particular issue was a priority?

One of the most controversial issues in child-hood psychiatry today stems from the fear that widespread use of stimulant medications to treat children with AD/HD could increase the risk of substance abuse in adulthood. Part of the rationale for this is that stimulant medications, such as methylphenidate and amphetamine, share with drugs of abuse the ability to increase dopamine concentrations in the nucleus accumbens, which is the neural mechanism considered crucial for their reinforcing effects. Indeed, methylphenidate and amphetamine are sometimes abused and as a result can produce dependence. Another rationale is related to timing of exposure: Human epidemiological studies have shown that the earlier an individual's exposure to



substances with abuse potential, such as alcohol and nicotine, the greater the risk of drug abuse and dependence in adulthood. However, an opposite perspective has also been proposed, according to which stimulant treatment of children and adolescents with AD/HD may reduce the risk of later substance abuse. Considering that individuals with AD/HD are at higher-than-normal risk for substance abuse, it is urgent for us to discriminate between the two alternatives in order to properly address this issue.

The complex nature of the research needed in this area has resulted in ambiguous, sometimes even contradictory, conclusions. Different investigators have found positive, negative, and even non-significant correlations between stimulant treatment of AD/HD and the subsequent risk of substance use disorders. These studies help to clarify some of these issues.

Were there any limitations with this research that parents should know about? Are there plans to replicate this study?

Yes—there are almost always limitations to any study. For these, the most notable is that the samples are clinically referred; therefore, medication status is not randomized. The gold standard for addressing this type of question would be a randomized study in which some children receive medication and others do not (but receive a placebo), with a longitudinal design to measure various outcomes over time. However, this type of study would be not just extremely costly, but also ethically untenable unless an equally effective alternative treatment for AD/HD could be offered to the comparison group. Thus, these current studies add to a growing body of knowledge on the long-term outcomes associated

with stimulant treatment of AD/HD, but many questions remain. Of particular importance is whether adolescents being treated for AD/HD with stimulant medications are protected or at greater risk of subsequent substance abuse. Preliminary research in rats suggest that outcomes may be different based on the age of exposure to these medications. Given the continued high rate of stimulant medication use

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in this country and the important nature of the remaining questions, particularly on long-term trajectories of treated children, I would hope that researchers will continue to step forward to investigate these issues.

I have to ask, given your role, what you see as some other priorities for research involving AD/HD?

Among the most important questions I see are the long-term outcomes of treatment with AD/HD medications—on brain development, the trajectory of the disorder, and co-occurring problems such as substance abuse. Moreover, it is important that we continue to evaluate behavioral therapies in addition to pharmacotherapies, and to identify the genetic, environmental, and developmental factors that influence the

prevalence and course of the disorder, and the therapeutic efficacy of its treatments.

A second priority that I feel very strongly about stems from the rapid growth of diagnosed cases (which has stabilized in recent years in children and adolescents, but continues to increase in adults) that has led to a dramatic surge in the availability of stimulant medications in the market with the concomitant risk of diversion and abuse. In my opinion, the keys to addressing this critical issue are (a) tightening and ensuring medical standards of diagnosis and (b) continuing to educate the public about the dangers of nonmedical use of stimulant medications.

Who makes the decision that one research project is more important than another?

In addition to the peer review process, designed to evaluate the scientific merit and significance of a proposed research project, there is a constant dialogue between NIDA's leadership, the research community, NIDA's

Advisory Council (comprising scientists and members of the public), and relevant constituency organizations. The research agenda emerges naturally from an iterative process that consists of (a) assessing the knowledge gaps, patients' needs, and current public health challenges; (b) supporting and carrying out the basic and clinical research needed to address them; and finally (c) developing and testing the tools produced so that they can be deployed and further evaluated in the health care system.

Is there anything that we haven't asked you that you think would help parents affected by the disorder?

I would take this opportunity to reiterate and highlight that the new data provide important clinical evidence and support the current consensus about the appropriateness of the long-established clinical practices for the use of stimulant medication to treat children with AD/HD.