

Medications Reduce Incidence of Substance Abuse Among ADHD Patients

By **Steven Stocker**, NIDA NOTES Contributing Writer

Attention-deficit/hyperactivity disorder (ADHD) causes difficulties in paying attention, keeping still, and suppressing impulsive behaviors. It can lead to problems in school and on the job and create tensions with family members and other people. In addition, research has shown that children with ADHD have an elevated risk of becoming abusers of drugs and alcohol. Studies that have tracked children to adulthood have found higher rates of transition to abuse among those with ADHD compared to those without the disorder. Conversely, studies with adult substance abusers, particularly cocaine abusers, have found that when they were children a high percentage had ADHD that was undiagnosed and therefore untreated.

NIDA-supported researchers have been trying to learn why ADHD increases the risk of drug and alcohol abuse. Two possible explanations have been suggested. First, the disorder itself may be responsible. Alternatively, the medications used to treat the disorder may be to blame.

ADHD is usually treated with behavioral therapy and prescription stimulants, especially Ritalin® (methylphenidate), Dexedrine®, or Adderall®. Such therapy frequently reduces symptoms, but some clinicians have feared that giving prescription stimulants to children may get them in the habit of taking stimulants, and, as a result, they may be more likely to take illicit stimulants, such as cocaine and methamphetamine. Another possibility is that the use of prescription stimulants for treating ADHD may sensitize the brain to the rewarding properties of stimulants, and, as a result, patients who use illicit stimulants may be more likely to become addicted to them.

Some children treated for ADHD with stimulant medications experience adverse effects, such as tics or loss of appetite. These children may be treated instead with tricyclic antidepressants (TCAs), a class of medications that includes imipramine, desipramine, and nortriptyline. Just as with mild stimulants, some clinicians are concerned that giving these mood-altering medications to children may get them in the habit of taking drugs to feel better and so they may be more at risk of using illicit drugs.

If ADHD treatment medications increase the risk of drug abuse, then using them might do more harm than good over the course of the child's lifetime. However, two new NIDA-supported studies suggest that treatment medications may be part of the solution to drug abuse in ADHD, rather than the problem.

One study found that children who were medicated for their ADHD were less likely to become

substance abusers during 4 years of followup than were children with ADHD who were not medicated. The other study found that administering an ADHD medication to adult cocaine abusers with the disorder reduced their cocaine use.



Children with ADHD often have trouble concentrating and keeping still, which can lead to problems in school.

Boys Treated for ADHD Abuse Drugs Less Than Untreated Boys

Researchers at Massachusetts General Hospital and the Harvard Medical School, both in Boston, compared the incidence of substance abuse and dependence in 56 boys with ADHD who were being treated with either stimulants or TCAs at the beginning of the study, 19 boys with ADHD who were not receiving any medications, and 137 boys without ADHD. All boys were Caucasian and were followed for 4 years and then evaluated for abuse of or dependence on marijuana, alcohol, hallucinogens, stimulants, or cocaine. At the time of evaluation, the boys were at least 15 years old.

Treating ADHD with medications appeared to reduce the tendency to abuse drugs and alcohol. While 75 percent of the unmedicated ADHD boys had started abusing these substances in the previous 4 years, this was true of only 25 percent of the medicated ADHD boys and 18 percent of the boys without ADHD. The researchers calculated that treating ADHD with medications reduced the risk of substance abuse or dependence by 84 percent.

Dr. Joseph Biederman, the principal investigator of the study, calls this very important information for the field of pediatrics. "These are the first data to refute the argument that ADHD medications increase the risk that children will become addicts," he says. "There have been studies consistent with these findings for many years, but now we have solid statistical evidence that these medications decrease, rather than increase, vulnerability to addiction, at least in adolescent Caucasian boys."

Why treatment with medications should reduce the incidence of substance use disorders in boys with ADHD is not known, says Dr. Biederman, just as what causes ADHD and how medications reduce ADHD symptoms are also unknown. "I can only speculate that by reducing ADHD symptoms, the medications allow the children to interact better with their families and friends and to perform better in school," he says. "As a result, they are less likely to be ridiculed and rejected by other children and to fail in school. Because of this, they are less likely to be depressed and to take drugs in an attempt to treat their depression." He says that another reason may be that the medications reduce the tendency of ADHD children to be impulsive, which often leads them to engage in risky activities, such as taking drugs.

Other researchers have reported that some adult cocaine abusers with childhood histories of ADHD state that when they first started using cocaine, the drug initially improved their ADHD symptoms. Their concentration improved, they were less impulsive, and they felt calmer. This would suggest that young people with ADHD who abuse cocaine and other stimulants may be doing so to self-medicate their ADHD symptoms rather than to treat depression resulting from rejection and failure.

"In some cases, young people with ADHD are not properly diagnosed and treated, and, as a result, they have terrible problems," says Dr. Arthur Horton of NIDA's Division of Treatment Research and Development (DTRD). "Their lives are not going well, so they try different things to make themselves feel better. They don't know that Ritalin® will alleviate their symptoms. If they happen to try cocaine, they might find that it initially makes them more focused and able to deal with life, so they keep taking it, and that's how they get hooked."

DTRD Director Dr. Frank Vocci points out that more research needs to be done before definite conclusions can be drawn about the relationship between ADHD therapy and substance abuse. "As it stands, this study clearly supports the idea that medications protect individuals with ADHD from becoming substance abusers during childhood and adolescence," he says. "However, whether or not they become substance abusers when they reach adulthood is still an open question."

Dr. Biederman says that his group is continuing to collect data on his sample as they age. Another followup study is currently under way on the young men, who are now between 16 and 27 years old. This study should help answer the question of whether ADHD medication therapy can protect against substance abuse in late adolescence and early adulthood. The researchers are also following a group of girls with ADHD and a comparison group of girls without ADHD. A key question to be answered will be whether gender differences exist in the effects of stimulants, including the effects on substance abuse.

Treatment That Includes Methylphenidate Helps Adult Cocaine Abusers With ADHD

In addition to helping protect children with ADHD from becoming substance abusers, methylphenidate may also help adult cocaine abusers with ADHD reduce their drug use. In a pilot study, Dr. Frances Levin and researchers at Columbia University in New York City gave methylphenidate for up to 12 weeks to 12 adult cocaine abusers with ADHD. Patients also received individual weekly relapse prevention therapy, which involved identifying situations in which they were likely to return to cocaine use and developing strategies to avoid cocaine use in these situations. Of the 12 patients who entered the study, 7 could be reached for a 3-month assessment. Patients reported a reduction in ADHD symptoms, cocaine use, and craving; urine tests confirmed that their cocaine use had in fact decreased significantly.

At present, Dr. Levin cannot say whether methylphenidate, the behavioral therapy, or a combination of both was responsible for the positive results. To answer this question and to determine whether these preliminary results can be reproduced among other cocaine abusers with ADHD, she is conducting a large clinical trial in which neither the patients nor their therapists know whether the patients are receiving methylphenidate or placebo.

Sources

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