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NIH Research Suggests Stimulant Treatment for ADHD Does Not Contribute to Substance Abuse Later in Life

Early Evaluation for Substance Abuse Still Important for This High-Risk Group

Treating children as early as age six or seven with stimulants for Attention-Deficit Hyperactivity Disorder (ADHD) is not likely to increase risk of substance abuse as adults, according to two studies funded by the National Institutes of Health (NIH). However, the studies 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 (NYU) and the Massachusetts General Hospital/Harvard Medical School (Mass General) are being published in this month's *American Journal of Psychiatry*.

“There has been widespread debate on the possible link between stimulant medications for children and adolescents with ADHD and substance abuse later in life,” said NIH Director Elias Zerhouni.

“Researchers supported by several NIH Institutes are working to resolve this issue so we can offer scientifically valid information to clinicians and parents concerned about the treatment of their children with stimulant medications.”

The NYU study evaluated substance abuse behaviors in 176 young men who had been treated for ADHD when they were children to determine whether there was a relationship between the age when stimulant treatment was initiated and subsequent drug abuse in adulthood. They found that those children who began treatment when they were younger (6–7 years old) had substance abuse rates no different than from a comparison group who did not have ADHD (27 percent vs 29 percent); however those who began treatment when they were older (8–12 years old) had higher rates of substance abuse (44 percent), which was accounted for by co-occurring antisocial personality disorder. “Overall, our results suggest that early stimulant treatment does not appear to have negative outcomes for substance abuse in children with ADHD,” said Salvatore Mannuzza, Ph.D., M.Ph., lead author of the study.

The Mass General researchers, led by researcher Joseph Biederman, M.D., conducted a 10-year follow-up study of boys with ADHD, now grown up. They also found no evidence that prior treatment with stimulants affected the rate of substance use disorders for alcohol, drugs, or nicotine.

“Because the use of stimulants in children did not decrease the risk of later substance abuse, it is still critical that young people with ADHD be screened for substance abuse,” said National Institute on Drug Abuse Director Nora Volkow. “Further, treatment approaches need to go beyond standard ADHD strategies towards integrated treatments that target both ADHD and substance abuse as soon as symptoms emerge.”

Researchers point out both studies had limitations, including small samples, non-randomized study designs, and an exclusively male population that was not racially balanced.

“Prospective studies are also needed on a larger sample of adolescents treated with stimulant medications to more carefully evaluate the consequences of stimulant exposure, since this is a period of particular vulnerability for drug abuse and dependence,” added Volkow.

There are at least two reasons for concern about drug abuse in children treated with stimulants for ADHD. First, stimulants are widely prescribed and like drugs of abuse, they increase dopamine concentrations in the brain, and can themselves be abused. Second, studies have shown that the earlier an individual is exposed to some substances with abuse potential, the greater the risk of substance abuse as an adult. However, there is also evidence of impaired dopamine activity in the brains of individuals with ADHD, which could explain both their high risk for drug abuse, and why stimulant drugs in this population can relieve ADHD symptoms without the added risk for later substance abuse. In other words, the risk of substance abuse in patients with ADHD most likely has nothing to do with the use of stimulant medications; however, more research is needed.

The NYU study was funded by the National Institute on Drug Abuse and the National Institute of Mental Health; the Mass General study was funded by the National Institute of Child Health and Human Development and NIDA.

Attention-Deficit Hyperactivity Disorder is the most commonly diagnosed behavioral disorder in children and adolescents in the United States. It is estimated that between three and five percent of children have ADHD, or at least two million children in the United States. The median age of onset of ADHD is seven years, although the disorder can persist into adolescence and occasionally into adulthood. The principal characteristics of ADHD are inattention, hyperactivity, and impulsivity. Because many normal children have these behaviors, but at a level appropriate to their stage of development, it is important that any child suspected of having ADHD receive a thorough examination. Also, because symptoms may be caused by another disorder, appropriate diagnosis by a well-qualified professional is essential. Methylphenidate and amphetamine are the most commonly used stimulant medications to treat ADHD.

More information on ADHD can be found on the Web site of the National Institute on Mental Health at www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america.shtml#ADHD

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The National Institute on Drug Abuse is a component of the National Institutes of Health, U.S. Department of Health and Human Services. NIDA supports most of the world's research on the health

aspects of drug abuse and addiction. The Institute carries out a large variety of programs to ensure the rapid dissemination of research information to inform policy and improve practice. Fact sheets on the health effects of drugs of abuse and further information on NIDA research can be found on the NIDA web site at www.drugabuse.gov.

The National Institute of Mental Health (NIMH) mission is to reduce the burden of mental and behavioral disorders through research on mind, brain, and behavior. More information is available at the NIMH website at www.nimh.nih.gov.

The NICHD sponsors research on development, before and after birth; maternal, child, and family health; reproductive biology and population issues; and medical rehabilitation. For more information, visit the Institute's Web site at www.nichd.nih.gov.

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