

Ritalin vs. Cocaine

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Researchers worry Ritalin may spark cocaine habit

By Alison Motluk
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A conference this fall will focus on a drug regularly taken by millions of American children that is similar in crucial ways to cocaine. Some experts are studying whether it could encourage substance abuse in later life.

The drug is methylphenidate, better known as Ritalin. It is the leading treatment for a neurological condition known as attention deficit-hyperactivity disorder, or ADHD.

The disorder prevents children - mostly boys - from focusing their mental energies.

Scientists have little idea what causes the disorder. They believe it involves the failure of certain receptors in the brain to respond to the neurotransmitter dopamine.

Ritalin has transformed the lives of ADHD children. It has become by far the most popular drug for dealing with the condition, with a 90 percent share of the market.

According to the Drug Enforcement Administration, production of Ritalin in the United States increased almost fivefold from 1990 to 1995.

Ritalin has been around for more than 40 years, and was originally used to treat narcolepsy, a sleeping illness.

Its increased use is mainly because of the rapid rise in the number of people diagnosed with ADHD, especially in the United States. Some doctors claim that up to 5 percent of all boys and 2 percent of girls worldwide - and a large number of adults - suffer from the condition.

Outside the United States, doctors are more skeptical about ADHD, but even those who believe Ritalin is being over-prescribed agree that it is a genuine disorder and that Ritalin helps.

But over the past few years there have been growing concerns about its long-term effects. Ritalin is a stimulant that works by making dopamine more available in the brain.

Its effects in the brain are very similar to those of cocaine, and some researchers are warning that regularly giving children a cocaine-like substance might prime them for drug abuse later in life.

Fears on agenda

They also say that children on Ritalin are more likely to smoke. Fears such as these have put Ritalin firmly on the agenda for the National Institutes of Health conference on ADHD, scheduled for November.

Concerns about Ritalin began to emerge in 1995, with a study in the Archives of General Psychiatry titled "Is methylphenidate like cocaine?" The paper concluded that it was.

Its lead author, Nora Volkow, director of nuclear medicine at the Brookhaven National Laboratory in Upton, N.Y., looked into where and how quickly Ritalin acts in the human brain.

In Volkow's study, eight healthy male volunteers were injected with the drug. Their scans were then compared with those of subjects in previous studies who had been injected with cocaine.

The authors reported that the distribution of Ritalin in the human brain was "almost identical to that of cocaine." The drugs' effects also peaked at almost the same time - between four and 10 minutes in the case of Ritalin, and two and eight minutes for cocaine. Even the highs were similar.

Very similar drugs

"We've given it to cocaine users, and they say it's almost indistinguishable," Volkow says. The only significant difference was that Ritalin took over four times as long - 90 minutes - to leave the body.

Volkow stresses, however, that taking a stimulant orally is very different from injecting or snorting it. Intravenous caffeine also resembles cocaine, she points out.

Her paper warned that similarities between cocaine and Ritalin "should not be used as an argument against the use of methylphenidate."

And she admits that there is no evidence of a link between Ritalin use and cocaine abuse. But she adds: "We do have evidence that if we don't treat them, then they will turn to self-medication." She says that 10 percent to 30 percent of cocaine abusers take cocaine because they have ADHD.

"When we give them Ritalin, the cocaine problem is resolved," she says.

Volkow's results came on top of earlier animal experiments suggesting that prolonged exposure to some stimulants made rats more likely to become addicted to cocaine.

Study of rats

One such study by Susan Schenk, a psychopharmacologist at Texas A&M University in College Station, involved rats that pressed a lever to give themselves cocaine.

The experiment showed that rats given amphetamines for nine consecutive days were more likely to give themselves cocaine than rats that had been given saline solution.

The fear is that, like amphetamines, Ritalin primes the brain so that any later use of cocaine has a bigger effect than it would otherwise.

If so, Ritalin may make people more likely to abuse cocaine or other stimulants, rather than experiment with them once or twice.

To find out whether her findings had implications for children taking Ritalin, Schenk teamed up with Nadine Lambert, a developmental psychologist at the University of California at Berkeley.

Lambert followed the progress of 5,000 children with ADHD in the San Francisco area from adolescence into adulthood to discover whether the drug has any effect on tobacco, alcohol and illicit drug use in later life.

In a paper to be published in October in the Journal of Learning Disabilities, Lambert claims that children who take Ritalin are more likely to smoke as adults.

Taste for cocaine

Other data, which Schenk presented at a meeting held by the DEA in December 1996 and are being revised for publication, suggest that they are no more likely to abuse alcohol or marijuana, but are three times more likely to develop a taste for cocaine.

Not everyone is convinced.

Alan Zametkin, a psychiatrist at the National Institute of Mental Health near Washington, D.C., says that the team's research design was flawed because the subjects were not assigned at random.

Those sufferers on medication were probably more severe cases than those who were not, he says.

Schenk admits that there are uncertainties in the team's study, but points out that whether the children were treated had little to do with the severity of their condition.

For instance, those not on medication may have had parents who were against the use of drugs such as Ritalin.

Another attempt to monitor children taking Ritalin into early adulthood supports Zametkin's skepticism.

Another study

Lily Hechtman, a psychiatrist at the Montreal Children's Hospital, looked at people who had taken Ritalin for three to five years, and compared them with people who were not hyperactive and people who had been diagnosed with ADHD but not given the drug.

She found no significant differences in patterns of substance abuse among the three groups.

Zametkin goes further. He believes that sufferers who are given Ritalin are less - not more - likely to abuse drugs later in life.

``My theory is that stimulant use allows kids to be more successful and therefore they develop fewer anti-social behaviors," Zametkin says. ``So it's less likely they'll become drug addicts."

Schenk, too, accepts that Ritalin is a useful drug. In a cost-benefit analysis, she says, any side effects would probably pale in comparison to the good it does.

But that does not mean that you should not look for them, she says. ``You still have to know what the costs are."