Methoxsalen Decreases Desire to Smoke

By Jaclyn M. Cheek

In 1998, NIDA-supported research found a genetic variation that makes some people less likely to become addicted to nicotine than others. They also found that people with this gene who were addicted were likely to smoke fewer cigarettes and have an easier time quitting smoking. The researchers found a medication called Methoxsalen that mimics the effects of the above-mentioned genetic variation. Currently used in treatment for severe psoriasis, Methoxsalen works for smokers by "...partially blocking the body's ability to break down nicotine, significantly improving the effectiveness of oral nicotine replacement in reducing a smoker's urge for nicotine."

Dr. Edward Sellers and his colleagues found that smokers who take Methoxsalen take fewer and shorter puffs while smoking. Dr. Sellers goes on to say that Methoxsalen, or other medications which act as the principal site for nicotine metabolism, may be a new treatment option for nicotine addiction. Importantly, Methoxsalen would limit a smoker's ingestion of harmful constituents of tobacco smoke. Methoxsalen works by reducing the activity of CYP2A6 and makes more nicotine available in the blood for longer. This longer availability sustains the smoker for a longer period of time, thus reducing the need to smoke.

NIDA researchers conducted two studies to investigate Methoxsalen's effect on nicotine metabolism and nicotine cravings in smokers who were not trying to quit smoking. Results from the first study showed that participants who were given Methoxsalen in combination with nicotine replacement had mean nicotine levels twice as high as those given placebo plus nicotine replacement. They also reported far less desire to smoke than participants who were given placebo. Results from the second study, which consisted of participants who were given either Methoxsalen, placebo in combination with nicotine, or just placebo, showed that Methoxsalen plus nicotine smokers, smoked
fewer cigarettes, had longer intervals between cigarettes, and took fewer puffs on each cigarette.

Although these results look promising, Methoxsalen has currently not been proven safe for long-term treatment in humans.

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The Maternal Substance Abuse and Child Development Project is funded in part by the Georgia Department of Behavioral Health & Developmental Disabilities (DBHDD).

References: