Antidepressant medication may be key to help people stop use of cocaine while in treatment for opioid use disorder

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For some people receiving methadone for treatment of opioid use disorder (OUD), the co-use of opioids and stimulants such as cocaine is an issue. Now, a new study led by Johns Hopkins Medicine researchers

found that bupropion, an antidepressant medication also used for smoking cessation, may help people stop using cocaine while in treatment for OUD.

The results of the study were published March 15 in *JAMA Network Open*.

For this double-blind randomized study, the researchers used an adaptive treatment design, meaning that it allowed modifications to the trial and its statistical procedures. Between March 2015 and September 2019, 80 adult participants who were receiving methadone for OUD were recruited. Participants self-reported using cocaine at least once in the 30 days prior to entering the study. Their average age was 48 and they were predominately male (66%).

Forty participants were randomized to receive bupropion (up to 300 mg twice daily, orally) while the other 40 received a placebo. The participants were seen three times each week for 30 weeks. Urine samples and data on self-reported cocaine use were collected during every visit. Subjects received a monetary incentive for providing cocaine-negative urine samples during the study's first 26 weeks. Monetary incentives began at 50 cents per negative urine sample and increased exponentially throughout the course of the study. Nothing was earned for positive samples.

"Cocaine use is something our patients receiving methadone report wanting help with, and until now, very few treatments have been successful at helping them stop using cocaine," says Kelly Dunn, Ph.D., M.B.A., professor of psychiatry and behavioral sciences at the Johns Hopkins University School of Medicine. "Providing a monetary incentive is one of the most effective treatment strategies for cocaine use disorder."

Importantly, the type of incentive participants received varied based on their treatment response during the first six weeks of the study. Subjects who stopped using cocaine during the first six weeks received incentives to prevent relapse, while those who did not stop using cocaine received enhanced incentives to promote abstinence. Following this period, participants were assigned to receive either the medication or placebo for the remainder of the study. To determine whether the combined medication and incentive treatment was effective, the study compared people receiving either medication or placebo overall and then again within the two incentive groups.

The study did not find an effect of bupropion versus placebo overall. However, among participants who earned monetary incentives to help them stop using cocaine, those who received bupropion were more likely to not be using cocaine at the end of the study (67%) compared with those who received abstinent incentives with the placebo (30%). In contrast, people who received incentives designed to prevent relapse did not have any additional benefit from receiving bupropion versus placebo.

"Pairing bupropion to prevent cocaine use after the monetary incentives are discontinued may be a promising treatment strategy," says Dunn. "Our study showed that bupropion can work for a subgroup of people with OUD, and that whether or not they respond initially to treatment is a meaningful determinant as to the intensity of treatment they might need going forward."

The researchers say more studies are needed to assess the long-term outcomes for these patients and to see at what rate they might relapse back to cocaine use.

"We want to know the optimal length of time people need to be exposed to the medication to make the abstinence effects last longer," says Dunn.

More information: Orrin D. Ware et al, Bupropion Slow Release vs Placebo With Adaptive Incentives for Cocaine Use Disorder in Persons Receiving Methadone for Opioid Use Disorder, *JAMA Network Open* (2023). DOI: 10.1001/jamanetworkopen.2023.2278