

## Hypertension medication that targets stress may help smokers quit

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Credit: AI-generated image (disclaimer)

Smokers trying to quit often light up a cigarette to deal with stress. Now an interdisciplinary team of Yale researchers has shown that guanfacine, a medication approved for treating hypertension that reduces stress and enhances cognition, shows promise as a smoking cessation aid.



The study was published online Dec. 17 in the *Journal of Psychopharmacology*.

"The fact that this drug can target different <u>stress</u>-related effects made us believe this would be a good medication to study for <u>smoking</u> <u>cessation</u>, given the strong relationship between stress and <u>smoking</u>," said the study's lead investigator, Sherry A. McKee, professor of psychiatry and director of the Yale Translational Center to Develop Gender-Sensitive Treatment for Tobacco Dependence.

Many previous studies have shown that medications in the same class as guanfacine can eliminate the effect that stress has in contributing to relapse to addictive substances. Previous work by study co-author Amy F. T. Arnsten, professor of neurobiology and psychology, has shown that stress can impair the functioning of the prefrontal cortex, the brain's most evolved region, diminishing decision-making abilities and cognitive control. Arnsten has shown that guanfacine, which targets the noradrenergic system, can slow stress-related decreases in <u>cognitive functioning</u>.

The results showed that, compared with the placebo-treated smokers, guanfacine-treated smokers showed increased ability to resist smoking following stress and decreased smoking by 70% during the brief treatment period. The fMRI findings suggest that guanfacine may help improve control by increasing activation of specific control-related regions (anterior cingulate) and the more efficient processing of brain regions involved in executive functioning (dorsolateral prefrontal cortex) and attentional processing (parietal cortex).

"We know that individuals with addiction demonstrate decrements in prefrontal functioning, and medications that strengthen these cognitive functions can reduce impulsive responding—like relapsing back to smoking" says Marc N. Potenza, professor of psychiatry, neurobiology,



and the Yale Child Study Center, and lead neuroimaging investigator.

"We are now studying whether the medication might be particularly effective for women smokers given that women are more likely to smoke to manage negative mood and stress than men, who are more likely to smoke to satisfy their nicotine craving," McKee said.

Guanfacine is a selective alpha2A-adrenergic receptor agonist. It is approved by the U.S. Food and Drug Administration in an immediate release formulation, trade name Tenex, for treating hypertension in adults. In an extended release formulation, trade name Intuniv, guanfacine is approved for treating attention deficit hyperactivity disorder (ADHD) in children and adults.

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