

# Individualizing Nicotine Replacement Can Increase Smoking Cessation Rates

Lerman C, Kaufmann V, Rukstalis M, et. *Individualizing nicotine replacement therapy for the treatment of tobacco dependence: a randomized trial. Ann Intern Med* 2004;140:426–33.

## Study Overview

**Objective.** To compare the efficacy of nicotine replacement with a transdermal patch versus replacement with an intranasal spray and identify predictors of treatment success.

**Design.** Randomized, open-label study with a 6-month follow-up.

**Setting and participants.** 299 treatment-seeking smokers at 2 university-based smoking cessation clinics.

**Intervention.** Following group behavioral counseling, patients were randomized to nicotine replacement therapy (NRT) using either a transdermal patch or an intranasal spray. Demographics, smoking history, depression symptoms, and body mass index were measured at baseline.

**Main outcomes measures.** Biochemically verified abstinence rates.

**Main results.** Abstinence rates were not significantly different between the transdermal patch group and the intranasal spray group (15.0% versus 12.2%;  $P > 0.2$ ). Interaction between smoker characteristics and success with 1 of the 2 treatments was significant ( $P < 0.05$ ). Smokers with higher body mass index, higher dependence on tobacco, or those in a minority group had higher quit rates with the intranasal spray, while nonobese white smokers with lower dependence on tobacco had higher quit rates with the transdermal patch.

**Conclusion.** Choosing a nicotine replacement method based on smoker ethnicity, body weight, and level of dependence on tobacco may improve chances for a successful quit attempt.

## Commentary

Smoking cessation is the single most beneficial preventative health measure and is associated with a 50% absolute reduction in mortality when smoking is stopped before age 50 [1]. With such a large benefit, even a small change to cessation success rates is an important contribution to public health.

NRT has been proven to increase cessation success rates, but little data are available on administration routes for nicotine. The transdermal patch, intranasal spray, inhalers, and gum are readily available over the counter. This article found little difference between the transdermal patch and intranasal spray in overall 6-month success rates, but an intriguing difference was found in subgroup analysis—obese smokers with a higher dependence on tobacco or belonging to a minority group successfully quit more frequently with the intranasal spray. The advantage of individualized NRT over standard therapy was as great as standard therapy over placebo.

What might explain these unexpected findings? The authors speculate that the immediate action of a nasal spray, which can be quickly titrated up to achieve high serum levels of nicotine, is more satisfying to certain smokers. Highly dependent smokers can increase the dose of a nasal spray more effectively than with a patch. The authors further speculate that obese smokers respond to the “positive feedback” of a nasal spray, and that minority smokers crave higher peaks of nicotine. There was not sufficient data in this study to confirm any of these explanations, and more data on individualizing the route of NRT are needed. Were there cultural or socioeconomic factors that were not measured? It is possible that these findings were a unique feature of the study population. The authors did not state whether the subgroup analysis was planned prior to beginning data analysis; therefore, there is a higher chance that the subgroup findings are spurious.

## Applications for Clinical Practice

Consider a nicotine nasal spray in highly dependent tobacco users, and watch for further data on how to individualize a regimen for quitting.

—Review by Josh F. Peterson, MD, MPH

## References

- Centers for Disease Control and Prevention. The health benefits of smoking cessation: a report of the surgeon general. Atlanta: Department of Health and Human Services; 1990. Available at [www.surgeongeneral.gov/library/reports.htm](http://www.surgeongeneral.gov/library/reports.htm). Accessed 13 Apr 2004.