

# FPIN's Clinical Inquiries

## Electronic Cigarettes for Smoking Cessation

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### Clinical Question

Are electronic cigarettes (e-cigarettes) effective for tobacco cessation in adults?

### Evidence-Based Answer

e-Cigarettes with nicotine can be used to encourage smoking cessation, but continued use after cessation may be a risk factor for relapse. (Strength of Recommendation [SOR]: B, based on a meta-analysis of two low-quality randomized controlled trials [RCTs].) e-Cigarettes with nicotine used for smoking cessation are more effective than e-cigarettes without nicotine (9% vs. 4% off cigarettes at six months). Nicotine e-cigarettes are more effective at one year than other forms of nicotine replacement (18% vs. 9.9% off cigarettes at one year), although 80% of abstinent patients will continue e-cigarette use. (SOR: B, based on a large RCT.)

### Evidence Summary

A 2016 systematic review and meta-analysis evaluated the effect of using e-cigarettes to help patients who smoke achieve long-term smoking cessation.<sup>1</sup> The study included two RCTs with 662 adults from New Zealand and Italy interested in smoking cessation and compared e-cigarettes with nicotine to e-cigarettes without nicotine (placebo). Patients using e-cigarettes abstained

from smoking for at least six months at a higher rate than those using placebo e-cigarettes (9% vs. 4%, respectively; relative risk [RR] = 2.29; 95% CI, 1.05 to 4.96).<sup>1</sup> There were no serious adverse effects related to e-cigarette use.<sup>1</sup> The authors rated the overall quality of the evidence as low, with high risk of selection bias.

A 2019 pragmatic RCT with 886 patients from the United Kingdom who smoked cigarettes and were interested in quitting evaluated the one-year effectiveness of e-cigarettes with nicotine compared with other forms of nicotine replacement for smoking cessation. Patients had a median age of 41 years, and they smoked a median of 15 cigarettes per day. During randomization, researchers provided patients with an e-cigarette device and one 30-mL bottle of nicotine vaporizing fluid or three months of the nicotine replacement product of the patient's choosing (e.g., patch, gum, lozenge, nasal spray, inhaler, tabs, strips). All patients also received weekly one-on-one behavioral support for a minimum of four weeks after the randomization date. Researchers defined the primary outcome as patient-reported sustained abstinence at one year, corroborated by carbon monoxide testing. In the e-cigarette group, 18% of patients reported sustained abstinence at one year compared with 9.9% in the nicotine-replacement group (RR = 1.83; 95% CI, 1.30 to

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## CLINICAL INQUIRIES

2.58; number needed to treat = 12).<sup>2</sup> However, at the end of follow-up, 80% of abstinent patients in the e-cigarette group continued to use e-cigarettes, whereas only 9% of abstinent patients in the nicotine replacement group still used nicotine replacement.

A 2019 French cohort study enrolled 5,400 adult smokers and 2,025 adult former smokers who quit in 2010, the same year e-cigarettes became available in France. Researchers obtained annual surveys from patients about their cigarette and e-cigarette use for at least one year (mean 2.5 years) after enrollment. In multivariate analysis, patients who used e-cigarettes were more likely to quit smoking than those not using e-cigarettes (adjusted RR = 1.67; 95% CI, 1.51 to 1.84).<sup>3</sup> However, among former smokers, e-cigarette use was associated with a higher rate of relapse (adjusted hazard ratio = 1.70; 95% CI, 1.25 to 2.30).

### Recommendations from Others

The current guidelines from the American Cancer Society (ACS) recommend that clinicians advise patients to stop smoking and, if needed, to recommend U.S. Food and Drug

Administration–approved cessation aids proven to support successful quit attempts.<sup>4</sup> The ACS acknowledged that some smokers will not use these approved cessation aids. The ACS does not recommend the use of e-cigarettes as a cessation method.<sup>4</sup>

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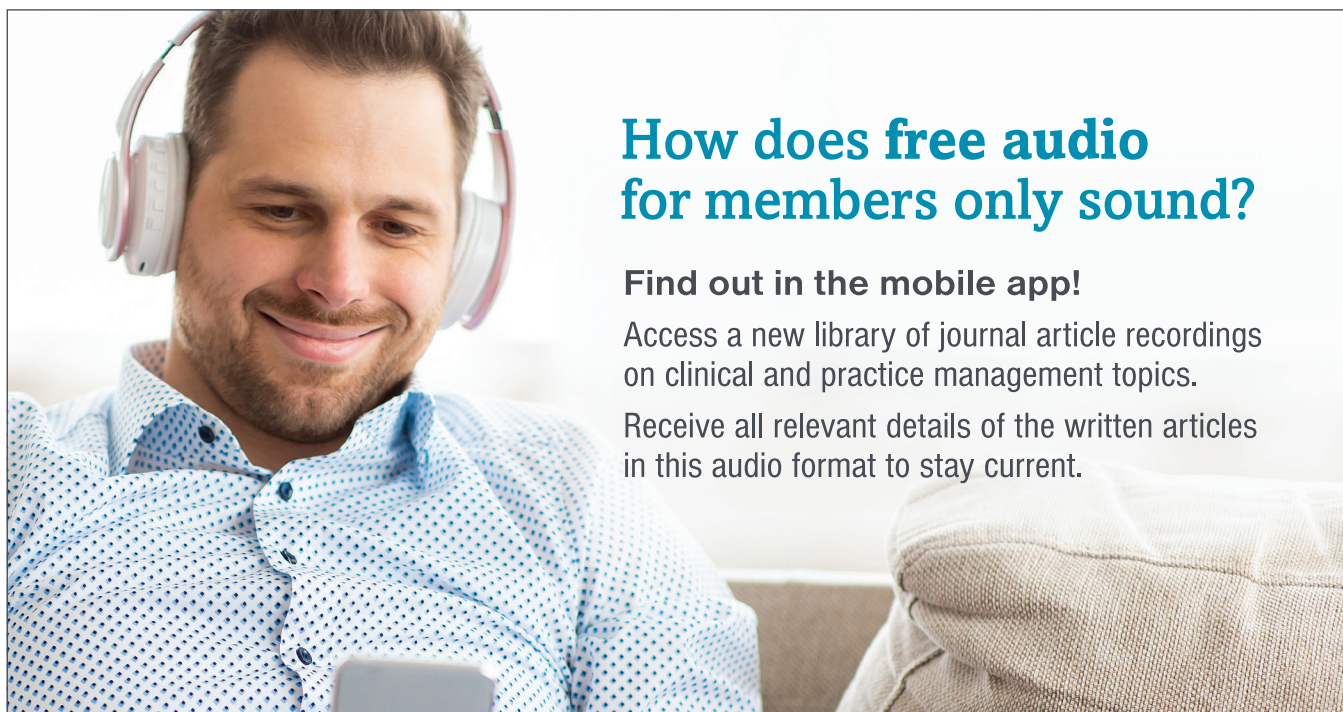
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