

DSEN ABSTRACT

Pharmacotherapy for Smoking Cessation: A Systematic Review and Network Meta-Analysis

Summary

A systematic review and network meta-analysis of the efficacy and safety evidence of pharmacotherapies used for smoking cessation in adults.

Key messages

Bupropion, varenicline and nicotine replacement patch significantly improved continuous abstinence rates compared to placebo at 6 months; and varenicline showed significantly higher continuous abstinence rates compared to bupropion. There was no difference at 12 months.

No safety signal for myocardial infarction or suicidal ideation was identified, however, results should be interpreted with caution given the small number of trials reporting this outcomes and the low number of events available for analysis. Data for other safety outcomes were negligible or not reported.

Authors: George Wells, Shannon Kelly, Chris Cameron and Canadian Collaboration for Network Meta-Analysis (ccNMA)

For more information, please contact
George Wells:
gawells@ottawaheart.ca

What is the issue?

- The province of British Columbia (BC) offers a program (BC Smoking Cessation Program) designed to assist residents who wish to stop smoking or using other tobacco products with the cost of smoking cessation aids.
- Conducted under the province's PharmaCare program, the program entitles eligible residents to covered benefits for prescription smoking cessation drugs or no cost access to non-prescription nicotine replacement therapy (NRT) in the form of chewing gum or patches in multiple strengths.
- Recent concerns over neuropsychiatric and cardiovascular adverse events of the prescription medications (bupropion, varenicline), coupled with a practical need to appraise the currency of the provincial smoking cessation program against current evidence led to a query request from the province of BC.

What was the aim of the study?

- To review the evidence on the efficacy and safety of bupropion, varenicline and various nicotine replacement therapies for smoking cessation in adults.

How was the study conducted?

- We undertook a systematic review of randomized controlled trials (RCT) followed by meta-analysis and Bayesian network meta-analysis for the following outcomes: biochemically verified smoking cessation at 6, 12 and greater than 12 months, cardiovascular death, myocardial infarction, stroke, transient ischemic attack (TIA), suicidal ideation, completed suicide, and treatment-emergent aggression.

What did the study find?

- 81 publications were included describing 77 RCTs reporting on varenicline, bupropion and NRT).
- The continuous abstinence rate (CAR) at 6 months was significantly better for the pharmacotherapies considered (namely: bupropion 150 mg bid, varenicline 1 mg bid and nicotine gum 2) compared to placebo.
- The CAR at 6 months was significantly better for varenicline 1 mg bid when compared to bupropion 150 mg bid. There was no difference at 12 months.
- The CAR at 12 months was significantly better for the pharmacotherapies considered (namely: bupropion 150 mg bid, varenicline 1 mg bid, nicotine gum 2 and nicotine patch 21 mg) compared to placebo.
- A single study reported continuous abstinence rate at greater than 12 months follow-up. The cessation rate for nicotine patch when compared to placebo showed no significant difference at 5 years.
- No significant differences in the risk of suicidal ideation between varenicline, bupropion, NRT and placebo were found. However, these results must be interpreted with caution given the limited data.

This research was funded by CIHR – Drug Safety and Effectiveness Network and conducted by investigators affiliated with the following institutions:



Link to technical report: [Wells et al. 2014](#)