A summary of the Cochrane review overview:

Pharmacological interventions for smoking cessation: an overview and network meta-analysis

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Medications to help people to stop smoking: an overview of reviews

Background

Smoking is a main cause of early death throughout the world. There are a number of medications which can help people to quit smoking. Three of these, nicotine replacement therapy (NRT), bupropion and varenicline, are licensed for this purpose in the USA and Europe. Cytisine (similar to varenicline) is licensed for use in Russia and Eastern Europe. We reviewed studies of these and other treatments, including nortriptyline, to compare their benefits and risks.

Methods

We found 12 Cochrane reviews of different treatments. Treatments include NRT; antidepressants (bupropion and nortriptyline); nicotine receptor partial agonists (varenicline and cytisine); anxiolytics; selective type 1 cannabinoid receptor antagonists (rimonabant); clonidine; lobeline; dianicline; mecamylamine; Nicobrevin; opioid antagonists; nicotine vaccines; and silver acetate. The reviews were conducted between 2008 and 2012, and analysed 267 trials, covering more than 101,000 smokers. All the reviews used randomised controlled trials, and compared active treatment with placebo or other treatments. Outcomes were measured at least six months from the start of treatment, and results were usually checked by testing breath, blood or urine. We also assessed the risk of harms from each treatment. We then compared NRT, bupropion and varenicline, using a network meta-analysis.

Key results

NRT and bupropion helped about 80% more people to quit than placebo; meaning that for every 10 people who quit with placebo about 18 could be expected to quit with NRT or bupropion. Varenicline more than doubled the chances of quitting compared with placebo, so that for every 10 who quit with placebo about 28 could be expected to quit with varenicline. Varenicline helped about 50% more people to quit than nicotine patch and 'other' NRT (tablets, sprays, lozenges and inhalers), and about 70% more people than nicotine gum. Combining two types of NRT was as effective as using varenicline, and helped more people to quit than single types of NRT. There was little to choose between different types of NRT, apart from 'other' NRT, which helped slightly more people than nicotine gum; for every 10 people who quit with NRT gum, about 12 could be expected to quit with 'other' NRT. NRT combined with nortriptyline or with bupropion was not more effective than NRT alone.

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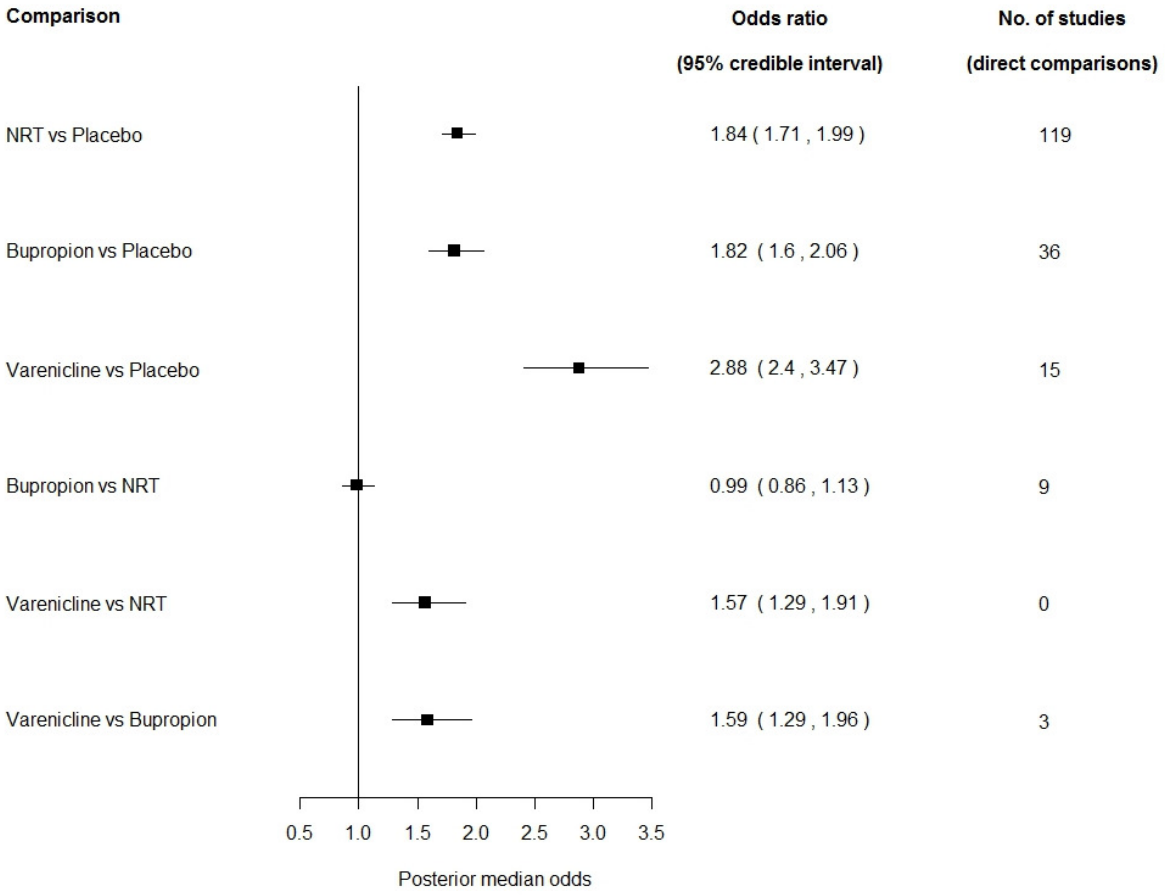
Both cytisine and nortriptyline compared with placebo improved the chances of quitting, with minimal risk of harms. Bupropion carries a known risk of seizures (about 1 per 1000 users), but we found fewer than expected in the included and excluded trials, at about 1 in 1500. Although there may be a marginal increase in the likelihood of serious adverse events while taking bupropion, we did not find increased risks of neuropsychiatric or heart and circulatory problems. The evidence for the safety of varenicline is still under investigation; we found no evidence from the trials that it is linked to an increase in neuropsychiatric problems, or with increased heart and circulatory problems.

Clonidine helped people to quit, but caused side effects. It is not clear whether or not mecamylamine used with NRT helps people to quit. Other treatments did not seem to help. So far, nicotine vaccines are not licensed for use anywhere in the world. Nicobrevin is no longer available in the UK, and rimonabant, taranabant and dianicline have all been withdrawn from the market.

Conclusions

NRT, bupropion and varenicline all improve chances of quitting, with low risk of harm. Combination NRT is as effective as varenicline, and more effective than single types of NRT. Cytisine has potential as a safe, effective and affordable treatment. Nortriptyline improves the chances of quitting, with little evidence of harmful events. We need continued monitoring of the safety of varenicline. More research into NRT versus placebo is unlikely to change our understanding of the treatment.

Network meta-analysis of smoking cessation with each first-line pharmacotherapy vs placebo and vs each other



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