

Stop-smoking drug Chantix/Champix does not increase risk of psychiatric problems

Peer reviewed: Yes

Type of study: Randomised controlled trial

Subject of study: People

Funding: Private foundation

A new analysis of data from a randomised controlled trial of the stop-smoking drug varenicline (brand name Chantix in the US and Champix elsewhere), has provided clear evidence that varenicline does not increase the risk of psychiatric problems. The study also assessed the risk of psychiatric problems associated with bupropion and the nicotine patch. It similarly found moderate to strong evidence for no increased risk of neuropsychiatric adverse events relative to use of a placebo.

Varenicline is very effective at helping smokers to stop, mainly by reducing cigarette cravings. However, concerns were raised soon after its launch that it might lead a small proportion of users to experience psychiatric problems such as suicidal thoughts, mood disturbance and increased aggression.

This led the US Food and Drug Administration and the European Medicines Agency to require the manufacturer, Pfizer, to run a very large clinical trial to assess the safety of the drug. The results were published in 2016 and they were interpreted as giving varenicline a clean bill of health. The analysis conducted at the time showed that there was no 'statistically significant' difference between the rate of psychiatric adverse events in people given varenicline and those given an inactive placebo. However, did not mean there was no effect of the drug, just that there was no strong evidence that there was an effect – which is not the same thing at all.

When assessing drug side effects we need to be able to judge what the *likelihood* is of it causing side-effects. The study team has today published a new analysis of the trial data directly addressing that question. It used a method similar to that used by codebreakers during the Second World War, called Bayesian analysis, to directly estimate the strength of evidence that varenicline causes psychiatric problems. The analysis provided strong evidence that in people without a psychiatric history varenicline does not increase risk of psychiatric problems. In people with a psychiatric history it found that it probably did not lead to psychiatric problems but with less certainty. When it came to causing serious psychiatric problems, even in this group it provided strong evidence of no adverse effect of the drug.

Dr Emma Beard (UCL Behavioural Science and Health), who led the analysis, commented “The shadow of psychiatric problems has arguably cost thousands of lives by putting people off using varenicline to help them stop, and doctors off prescribing it. This analysis should provide further reassurance to smokers and clinicians that this is a safe, life-saving drug.”

Professor Robert West, (also UCL), who was senior author on the paper, said “In my view this kind of Bayesian analysis should be standard for assessing *all* drug side effects, including for example, Covid-19 vaccines. It directly answers the question we want answered: what is the strength of evidence that the drug has side-effects? I'd like to see all studies of side effects use this approach in future.”

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For editors:

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