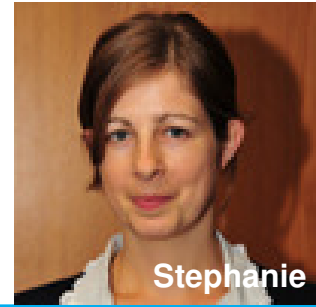


Can nicotine treat Parkinson's?



Project information

Lead researcher	Dr Stephanie Cragg
Location	University of Oxford
Cost	£177,041 over 3 years
Start date	September 2008
Type of project	Project Grant
Project code	G-0803

Project background

There is currently no cure for Parkinson's and the available medicines only help to relieve the symptoms. Since the 1960s, the most commonly used drug has been levodopa. It can dramatically improve many of the more serious symptoms by boosting amounts of the chemical dopamine in an area of the brain that helps to control voluntary movement. However, as time goes on, many people find that levodopa starts to lose its beneficial effect and gives rise to side effects, such as uncontrolled involuntary movements called dyskinesias. So finding other treatments to enhance or replace levodopa is a vital goal for Parkinson's research.

Dr Cragg and her team are interested in nicotine and other nicotine-like substances as potential treatments for Parkinson's for two reasons:

- **Nicotine changes the way dopamine is used by nerve cells in the brain region affected by Parkinson's.** Dr Cragg's team have found that in a typical healthy brain nicotine can boost the amount of dopamine that these nerve cells use to communicate with other parts of the brain. But we don't yet know whether it will have the same effect in the Parkinson's brain.
- **Many research studies have shown that smokers are less likely to develop Parkinson's.** So in addition to relieving symptoms, nicotine could potentially protect the dopamine-producing nerve cells from further damage. This could halt the progress of Parkinson's.

What the researchers are doing

Dr Cragg and her team are testing whether nicotine and related chemicals increase the amount of dopamine used by nerve cells in mice with Parkinson's-like symptoms. If the substances work, the team will also aim to find out more about how this happens.

Dopamine-producing nerve cells have several different types of nicotine 'receptor', or parts that can respond to nicotine. So the research team will try to find out exactly which types boost dopamine use, in case some types do but others don't.

How the research will help people with Parkinson's

This study will help us find out whether nicotine or related substances could be effective as treatments for Parkinson's that reduce the movement-related symptoms. By finding out exactly which of several types of nicotine receptor are involved, it may be possible to design new drug treatments that only work on those specific receptors. This would help to reduce potential side-effects and allow people to get more benefit from treatment.

For more information, please talk to the Research Team

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