Targeting brain rhythms to find better treatments for Parkinson's

Project information	
Lead researcher	Dr Ian Stanford
Location	Aston University
Cost	£177,578 over three years
Start date	September 2011
Type of project	Project grant
Project code	G-1008

Project background

The precise coordination of movement requires certain brain cells to use specific electrical rhythms. Different rhythms have different roles. The one that allows us to maintain our posture and control our movement – called 'beta' rhythm – is different to the one that allows us to perform activities such as reaching out for a mug of tea – known as 'gamma' rhythm.

- **The researchers have already shown that the levels of beta rhythms are increased in people with Parkinson's**. And also that they have difficulty switching between beta and gamma rhythms. So this will affect their ability to carry out specific tasks.
- **This can be reduced by taking the drug levodopa**, although this therapy becomes less effective over time**.**
- **Low-doses of zolpidem, which is a drug commonly used to treat insomnia, is able to reduce these increased levels of the beta type of rhythm.** People have

shown improvement in their movement without experiencing side-effects. Since zolpidem only affects the abnormal rhythms, it could be used to make an early diagnosis because if the person who took the drug has Parkinson's they will subsequently show a reduction in this rhythm before they actually start to experience the movement symptoms associated with Parkinson's.

What the researchers are doing

All of the studies so far have been carried out using people with Parkinson's who are already on medication. In this study, the Dr Stanford and his research team will investigate people who have been recently diagnosed with Parkinson's but who have not yet started any drug treatment. They will give them a low-dose of zolpidem and then see if there is any correlation between changes in their brain rhythms and an improvement in their symptoms. They also want to look at whether prescribing zolpidem along with levodopa may have additional benefits.

How the research will help people with Parkinson's

The ultimate aim of this project is to develop a better treatment for Parkinson's, improve the early diagnosis and reduce or delay the requirement for treatment with drugs such as levodopa. As levodopa treatment can give rise to numerous side effects, a reduction or delay in the dose has potentially huge value for people with Parkinson's.

This project is based on the results generated from an innovation grant previously awarded by Parkinson's UK. It's great that we can offer funding for an innovative piece of research. The researchers can then run with the results to carry out a larger study to bring the possibility of better treatments closer to the clinic.

For more information, please talk to the Research Team

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