Neurobiological mechanisms of depression in Parkinson's disease

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A better understanding of the underlying mechanisms of depression in Parkinson's disease will lead to better diagnoses, treatments, and quality of life.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Movement disorders (incl parkinsonism)
Study type	Observational invasive

Summary

ID

NL-OMON37738

Source
ToetsingOnline

Brief title
Depression in Parkinson's disease

Condition

- Movement disorders (incl parkinsonism)
- Mood disorders and disturbances NEC

Synonym
Parkinson's disease

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universiteit Nijmegen
Source(s) of monetary or material Support: Het Internationaal Parkinson Fonds (IPF)

Intervention

Keyword: Cognition, Depression, functional MRI, Parkinson's disease

Outcome measures

Primary outcome

We will measure error rates and brain activity using fMRI while participants perform a feedback-based learning task on a computer.

Sensitivity to reward and punishment will be also tested outside the context of learning (after scanning) using two additional behavioral tasks.

Furthermore, we will investigate the association between depressive symptoms, sensitivity to reward and genetic polymorphisms in dopaminergic genes, for instance DAT1.

Secondary outcome

Not applicable.

Study description

Background summary

Striatal dopaminergic depletion is the core problem in Parkinson's disease. However, in early disease stages, dopamine levels are not equally affected throughout the striatum. The striatum consists roughly of 2 parts, a dorsal (=upper) and a ventral (=lower) part. Dopaminergic depletion in the dorsal part gives rise to the motor symptoms in Parkinson's disease. The ventral part is involved in motivation and feedback-learning (i.e. learning based on reward and punishment). In depression these learning-processes are abnormal. The hypothesis of this research project is that dopaminergic depletion in the ventral part of the striatum causes depressive symptoms in Parkinsonian patients. We expect these patients to exhibit abnormal feedback-learning, associated with abnormal ventral striatal activity, compared to non-depressed Parkinsonian patients. Using functional MRI (fMRI), brain activity can be measured during a specific task in a sensitive, non-invasive way.

Study objective

A better understanding of the underlying mechanisms of depression in Parkinson's disease will lead to better diagnoses, treatments, and quality of life.

Study design

This is an observational study. All subjects will be tested twice using functional fMRI, once ON and once OFF their dopaminergic medication.

Study burden and risks

There are no risks involved for participating subjects. All patients will be subjected to an intake session (1 hour and 45 minutes) and 2 investigation days of approximately 5 hours, including 60 minutes of concentration on a task and in total 76 minutes of lying still in a MRI-scanner. After the main experiment in the scanner, all participants will perform two additional behavioral tasks for another 60 minutes. Furthermore, before and after the experiment some questionnaires will be completed (approximately 20 minutes).

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Idiopatic Parkinson's disease
Age between 30 and 70
Hoehn & Yahr stage 1 - 2.5 (mild to moderate disease)
ADL independent

Exclusion criteria

Severe depression according to the DSM IV
Dementia
Use of antidepressants or other psycho-active drugs
Severe comorbidity (including neurologic and psychiatric comorbidity)
Contra-indications for MRI

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	05-11-2012

Enrollment:	75
Type:	Actual

Ethics review

Approved WMO Date:	19-04-2012
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	07-06-2012
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL39307.091.12