Executive deficits in Parkinson's Disease in relation to depression, effort and motor symptoms

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This study will be focused on the executive functioning of PD patients and the associations between effort, motor symptoms, depression and the executive functioning of PD patients. By investigating to what extent executive dysfunctions in PD are...

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

Summary

ID

NL-OMON30409

Source
ToetsingOnline

Brief title
Executive deficits in Parkinson's Disease

Condition

- Movement disorders (incl parkinsonism)
- Cognitive and attention disorders and disturbances

Synonym
onbekend

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: 604175

Intervention

Keyword: Cognition, Depression, Effort, Parkinson

Outcome measures

Primary outcome

All cognitive variables will be converted to z-scores. Using these z-scores

composite scores will be calculated for the following cognitive domains:

- cognitive switching

- fluency

- respons inhibition

- planning

- memory

- psychomotor speed

Also, depression, the amount of effort and the motor symptoms will be measured.

Secondary outcome

not applicable

Study description

Background summary

Parkinson's Disease (PD) is characterised by a progressive death of neurons in nigrostriatal connections. Motor symptoms form the hallmark, however executive dysfunctions are often present. Norman and Shallice proposed an influential theory about executive functions. They suggest that the Supervisory Attentional System (SAS) is important in new situations in which automatic behavior is not sufficient. The SAS regulates the inhibition and activation of schemata. Schemata are implicit memory structures containing 'behavior codes' that can be activated in response to environmental stimuli. According to Brouwer factors like motivation, planning and effort can also influence the SAS and a dysfunction of one of these factors may cause executive dysfunctions.

Executive dysfunctions in PD may be caused by a dysfunction of three factors. First, in a study of our researchgroup the new Cognitive Effort Test was used. This test measures the amount of effort that is voluntarily invested. It differs from other neuropsychological tests in which the amount of effort that needs to be invested to succesfully complete the test is fixed. It was found that PD patients allocated less effort than healthy, age-matched, controls. Are executive dysfunctions in PD caused by an inability to allocate sufficient effort?
Second, the SAS can also be influenced by an inability to perform motor responses when confronted with a stimuli. According to the current models of basal ganglia organization, the dopaminergic functioning of the putamen is related to motor function. However, in a study of our researchgroup it was found that the dopaminergic functioning of the putamen was related to executive functioning in PD. Monchi et al. offer a possible explanation for this finding. They concluded that the putamen was activated during actions that followed a cognitive switch. The mental components of this cognitive switch were unrelated to putamen activity. To what extent are motor symptoms of PD responsible for decreased scores on executive functioning tests?
Third, depression might also influence executive functioning in PD. It was previously reported that depressed PD patients performed significantly worse on cognitive tests than non-depressed PD patients. However, Muslimovic et al. corrected depression for the clinical characteristics of PD and found no associations between depression and cognition. The previously reported discrepancies between depressed and non-depressed PD patients may have been caused by the depression rating scales that were used in these studies. These scales measure the affective and somatic symptoms of depression. In a study of our researchgroup it was found that the somatic symptoms of depression can also be PD symptoms. Furthermore, the motor symptoms of PD might also influence the performance on neuropsychological tests. To what extent is the executive functioning of PD patients influenced by the affective symptoms of depression? Are the motor symptoms of PD a third variable in the association between cognition and depression?

Study objective

This study will be focused on the executive functioning of PD patients and the associations between effort, motor symptoms, depression and the executive functioning of PD patients. By investigating to what extent executive dysfunctions in PD are based on these factors the treatment of executive dysfunctions in PD may be improved.
If the motor symptoms are responsible for decreased scores on executive functioningtests, antiparkinsonian medication is justified. If the affective symptoms of depression influence executive functioning anti-depressives might bring comfort, while cognitive revalidation is applicable if executive dysfunctions in PD are caused by an inability to allocate sufficient effort.

Study design

Executive functioning, depression and the amount of effort that is voluntarily invested will be measured with (neuro)psychological tests in PD patients and healthy controls. These groups will be matched for age, gender and level of education.

Study burden and risks

The assessment of (neuro)psychological tests will require concentration. Normally a break is sufficient to recover.
Since the level of performance will remain unknown to the participants no (psychological) damage is expected as a consequence of these tests.

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

Parkinson's Disease

Exclusion criteria

Dementia
Other neurologic disorders
Psychiatric disorders, except depression

Study design

Design

Study type:	Observational non invasive
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-10-2006
Enrollment:	100
Type:	Actual

Ethics review

Approved WMO

Date:	28-06-2006
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

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	NL11285.042.06