Detecting Parkinson*s disease using handwriting and tracing tasks: a prospective pilot-study

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To assess whether there are differences (including sensitivity and specificity) in pen motion and grip force patterns, derived using a system for handwriting monitoring while performing different writing, tracing and fine motor skill tasks, between...

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

Summary

ID

NL-OMON38701

Source
ToetsingOnline

Brief title
Detecting PD

Condition

- Movement disorders (incl parkinsonism)

Synonym
Parkinson's disease

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: EU (FP7)

Intervention

Keyword: diagnostic pen system, movement disorders, Parkinson's disease

Outcome measures

Primary outcome

Pen tip motion, velocity and acceleration and pen grip forces (in the time and frequency domain) during each of the tasks, compared between groups (PD or other MD). In addition Purdue Pegboard test scores will be compared to these parameters and to UPDRS scores in Parkinson patients.

Secondary outcome

NA

Study description

Background summary

In a previous study we showed that a system for handwriting monitoring allowed distinguishing patients with Parkinson*s disease (PD) from age-matched healthy controls with high sensitivity and specificity. However, patients were off medication, older (>50 years) and selected to be in a specific disease stage. Furthermore, the more important application of the system would be the differentiation between PD and other movement disorders (other MD). In the present study we therefore aim to evaluate the system for its ability to differentiate between patients with PD and patients with other movement disorders, when no prior selection of patients has taken place.

Study objective

To assess whether there are differences (including sensitivity and specificity) in pen motion and grip force patterns, derived using a system for handwriting monitoring while performing different writing, tracing and fine motor skill tasks, between an unselected population of patients with PD and patients with another type of movement disorder (other MD).

Study design

Observational study. Subjects have to execute diadochokinesis, line, spiral, circle and zigzag drawing, text writing and a Fitts* task on a writing tablet while holding a pen that can measure grip force. In addition a rest measurement is taken and fine motor skills will be tested using the Purdue Pegboard test. Other parameters of interest (medication use, comorbidities, UPDRS (Unified Parkinson*s Disease Rating Scale) score at time of testing) and the definite diagnosis will be collected from the patient*s file.

Study burden and risks

There are no risks or benefits, and the burden is limited to the time invested in the test (approximately 30-35 minutes, directly before or after a patient*s appointment at the outpatient clinic).

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

- right*handed
- informed consent
- ability to hold a pen for at least half an hour

Exclusion criteria

- Mini Mental State Examination (MMSE) score <26

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Diagnostic

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	25-11-2013
Enrollment:	120
Type:	Actual

Ethics review

Approved WMO

Date:	02-07-2013
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	NL44468.042.13