Effect of optic flow modulations on parieto-premotor networks in patients with Parkinson's disease.

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To obtain more fundamental insight in the disrupted sensorimotor integration in patients with Parkinson*s disease, especially with regard to the impact of visual stimuli on the cerebral systems involved in walking. This knowledge provides a basis...

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

Summary

ID

NL-OMON34584

Source
ToetsingOnline

Brief title
Cerbral activations resulting from optic flow in M. Parkinson

Condition

- Movement disorders (incl parkinsonism)

Synonym
Morbus Parinson, Parkinsons disease

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Groningen
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: fMRI, Optic flow, Parkinson's disease

Outcome measures

Primary outcome

The study parameter is the cerebral activation determined with the used of

fMRI.

Secondary outcome

n.a.

Study description

Background summary

Walking in patients with Parkinson*s disease is influenced by visual stimuli, both supporting as well as inhibitory. Previous research by patients with Parkinson*s disease showed that walking was easier during wide field expanding optic flow than during small field optic flow [Van der Hoorn et al., in prep]. The difference during wide and small field represents the situation during freezing of gait (FOG) when approaching a narrow passage [Giladi et al., 1992]. A fMRI research in healthy volunteers showed that wide field optic flow activates the right dorsal premotor cortex. This premotor activation disappeared when narrowing the flow field. At the moment mediofrontal activation appeared [Van der Hoorn et al., subm.]. This showed a shift from external motor support to an internal motor generation. We aspect that this shift by patients with Parkinson*s disease is disrupted due to a inadequate output from the basal ganglia to the mediofrontal cortex.

In the present study we aim to investigate the cerebral activation patterns due to optic flow and modulation of optic flow in patients with Parkinson*s disease with and without FOG in comparison with healthy controls of comparable age. During wide field forward optic flow, dots appear form the centre of the horizon and expand with increasing speed radial to the lower part of the monitor (De Jong et al., 1994).

Study objective

To obtain more fundamental insight in the disrupted sensorimotor integration in

patients with Parkinson*s disease, especially with regard to the impact of visual stimuli on the cerebral systems involved in walking. This knowledge provides a basis for more targeted patients* selection for specific treatment strategies.

Study design

This study concerns a fMRI-activation study, in which subject are watching a monitor while lying in the MRI. Three experimental conditions are displayed in a pseudo-randomized order. In condition 1 wide field forward optic flow is followed by a narrowing of the optic flow field, after which narrow field optic flow is shown (forward flow wide - narrow). In condition 2 (forward flow wide - stationary) the wide field optic flow is followed by stationary wide field of dots. In condition 3 (stationary wide - narrow) a stationary wide field of dots in the lower half of the monitor is followed by a narrowing resulting in a narrow field stationary dots.

Study burden and risks

The use of MRI is very safe when paying close attention to contra indications for a MRI scan. The contra indications will be inventoried during the telephonically contact for making a appointment. This issue is addressed explicitly in the informed consents forms and will be controlled before the MRI scan is actual performed.

Contacts

Public
Universitair Medisch Centrum Groningen

Hanzeplein 1
Postbus 30.001, 9700 RB Groningen
NL
Scientific
Universitair Medisch Centrum Groningen

Hanzeplein 1
Postbus 30.001, 9700 RB Groningen
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Patients with Pakinsons disease (15 with and 15 without FOG) as well as healthy controls with comparable age and sex will by selected. (protocol 4.2 Inclusion criteria p. 13)

Exclusion criteria

Patients with a tremor of the head to such an extend that lying still during the scan is not possible, will be excluded. Subjects with neurological or uncorrected ophthalmological disorders will be excluded as well as subjects who fulfill one of the exclusion criteria for conducting a MRI. An age limit of 84 is used.

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):	10-11-2010
Enrollment:	45
Type:	Actual

Ethics review

Approved WMO Date:	02-09-2010
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	NL32970.042.10