

Interaction between motor fatigue and cognitive functioning in patients with multiple sclerosis

Published: 23-06-2010

Last updated: 01-05-2024

How does motor fatigue influence the cognitive functioning of patients with MS and how does this interaction compare to that in healthy controls?

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Demyelinating disorders
Study type	Interventional

Summary

ID

NL-OMON38018

Source

ToetsingOnline

Brief title

Motor fatigue and cognitive performance in MS patients

Condition

- Demyelinating disorders

Synonym

Multiple sclerosis

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: Cognitive function, Motor fatigue, MS

Outcome measures

Primary outcome

The primary parameters are the number of accurate responses to the CRT and the reaction times of these reactions.

Secondary outcome

Maximal voluntary contraction (MVC), decrease in force during fatigue.

Study description

Background summary

Fatigue is one of the most common complaints in MS and can influence the execution of daily tasks. The cause of the fatigue is not yet known (Tartaglia, 2004). In healthy people, fatigue of the central nervous system can be induced by repetitive activation of a small hand muscle. (Zijdewind et al, 1998, 1999 en 2001). This fatigue also results in secondary cognitive problems (Lorist et al, 2002; van Duinen et al 2005, Zijdewind et al, 2006). The study of the underlying central mechanisms of fatigue has been given relatively little attention. The goal of this research is to investigate the interaction between motor and cognitive functioning during a fatiguing motor task with a double-task paradigm. Previous research has shown that increasing fatigue causes a decrease of performance on the secondary (cognitive) task (Lorist et al, 2002; van Duinen et al, 2005; Zijdewind et al, 2006). The current study will investigate whether this is true for MS patients as well. We expect that patients, just as controls, will perform worse as a result of the dual-task paradigm, and that patients will have a longer recovery period in comparison to the healthy controls.

Study objective

How does motor fatigue influence the cognitive functioning of patients with MS and how does this interaction compare to that in healthy controls?

Study design

The research consists of three sessions. During the first session, the strength (using a force recorder) and muscle activity (using EMG-electrodes) of the abductor of the right index finger (FDI) are measured . De subject is asked to perform a cognitive 2-choice reaction time task (CRT), alone or simultaneously with a motor task.

Intervention

Fatigue task

Study burden and risks

No risk, time investment for the subject 3*1.5 hours is 4,5 hours.

Contacts

Public

Universitair Medisch Centrum Groningen

A.Deusinglaan 1
Groningen 9713 AV
NL

Scientific

Universitair Medisch Centrum Groningen

A.Deusinglaan 1
Groningen 9713 AV
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

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

Inclusion criteria

Relapsing-remitting multiple sclerosis
EDSS < 5,5
Sufficient hand function to operate the force recorder
Righthandedness
Informed consent

Exclusion criteria

Psychiatric disorder
Depression
Neurological disorder other than MS
EDSS >= 5,5
Hearing disorder
Medication that influences (subjective) fatigue or force production (Amantadine, Amytryptiline, Pemoline, Tizanidine, Baclofen, Benzodiazepines, Potassium channel blockers, or modafinil. Or use of prednisolon in the past 6 weeks).

Study design

Design

Study type: Interventional

Masking: Open (masking not used)

Control: Uncontrolled

Primary purpose: Other

Recruitment

NL
Recruitment status: Recruitment stopped

Start date (anticipated): 13-05-2011

Enrollment: 60

Type: Actual

Ethics review

Approved WMO

Date: 23-06-2010

Application type: First submission

Review commission: METC Universitair Medisch Centrum Groningen (Groningen)

Approved WMO

Date: 24-10-2012

Application type: Amendment

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

CCMO

ID

NL32399.042.10