Interaction between motor and cognitive performance during motor fatigue in MS en MG patients.

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

Summary

ID

NL-OMON30117

Source
ToetsingOnline

Brief title
Interaction between cognitive and motor performance

Condition

- Demyelinating disorders

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 performance, Fatigue, Motor performance, Multiple Sclerosis

Outcome measures

Primary outcome

reaction times and number of errors made during the choice reaction time task

are measured during the fatiguing motor task. The time course of the reaction

times and the numbers of errors in the patientgroups are compared with the time

course in the healthy volunteers.

Secondary outcome

not applicable

Study description

Background summary

Motor fatigue is an important symptom in neuromuscular diseases and movement disorders. Despite its impact, still little is known about motor fatigue in neurological disorders. Furthermore, even less is known about the secondary effects of motor fatigue on e.g. cognitive performance. In this proposal, we intend to investigate motor fatigue in Myasthenia Gravis (MG) and Multiple Sclerosis (MS) because these two disorders are at either end of the continuum from fatigue caused by peripheral (MG) to central (MS) factors.

Study objective

In both MG and MS patients groups we expect to find signs of central fatigue. The contribution of central fatigue to the general feeling of fatigue is expected to be more pronounced in MS-patients than in MG-patients. The secondary effects of motor fatigue on cognitive performance may be increased in both MG and MS-patients compared to control subjects. Knowledge about these aspects of fatigue is extremely important from a fundamental and clinical point of view. Furthermore, improved knowledge about motor fatigue is important for the well-being of the patients and their caregivers. In this study, we plan to investigate effects of motor fatigue on central activation patterns and related, secondary effects of motor fatigue on cognitive performance. In our

opinion, cognitive performance could be seriously affected by increased demands on central processing resources due to motor fatigue.

Study design

Central and peripheral effects of motor fatigue are investigated by a dual-task paradigm. Subjects are asked to produce various force levels with their right index finger while they perform a choice reation time task with their left hand. Possible interactions between the performance of the two taks are studied in 3 sessions. Session I is used to familiarize the subject with the experimental setup. Subjects have to produce a maximal contraction with their right index finger an perform a non-fatiguing contraction for 15 s combined with ah choice reaction time task. Session II is a repetition of session I. In the third session the choice reaction time task is combined with a fatiguing motor task. Subjects have to maintain a 30% of maximal force for 1 minute in combination with the choice reaction time task. Afterward they have 4 s rest and then they have to perform the same task again. This is repeated until the subject can*t maintain the 30% force any longer. At the end of the fatiguing contraction subjects have to perform 1 maximal contraction.

Intervention

Subjects perform a fatiguing motor task in combination with a choice reaction time task.

Study burden and risks

No risks are involved in this experiments; the experiments take time from the subjects. Subjects have to come to the lab 3 times and each visit takes about 1.5 hours.

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

MG patienten treated with cholinesterase inhibitors
MS patienten suffering from motor fatigue

Exclusion criteria

neurological disorders other than MS or MG

Study design

Design

Study type: Interventional

Masking:	Open (masking not used)
Control:	Uncontrolled

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-05-2006

Enrollment:	45
Type:	Anticipated

Medical products/devices used

Registration:	No

Ethics review

Approved WMO

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	NL11498.042.06