Investigating errorless learning and semantic priming in mild cognitive impairment and mild dementia: The M-DeMi study

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The aim of this study is to assess the memory system in MCI and mild dementia via errorless learning and semantic priming.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON46245

Source
ToetsingOnline

Brief title
M-DeMi

Condition

- Other condition
- Structural brain disorders

Synonym
early dementia, mild cognitive impairment

Health condition

cognitieve stoornis in het kader van neurodegeneratie

Research involving

Human

Sponsors and support

Primary sponsor: Radboud Universiteit Nijmegen
Source(s) of monetary or material Support: Ministerie van OC&W,NWO

Intervention

Keyword: errorless learning, mild cognitive impairment, mild dementia, semantic memory

Outcome measures

Primary outcome

EL: The effect of error frequency on memory performance in amnestic MCI and MD by using a novel errorless learning task in which the occurrence of errors is controlled compared to previous work.

SP: To assess lexical access and executive function in semantic priming in amnestic MCI and MD by means of a picture-word verification task.

Secondary outcome

EL: To compare the cognitive profile to the outcome on the EL and TEL condition.

SP: To assess brain atrophy of frontal and temporal brain areas (using MRI) as well as structural connectivity of pathways connecting these regions (using DWI) in MCI and MD.

Study description

Background summary

Pre-stages of dementia, such as mild cognitive impairment (MCI) or mild dementia (MD), are essential time windows to investigate coping strategies and to understand why some people develop a more severe form of dementia, while others age healthily. In this study, we aim to address the memory system via errorless learning (EL) and semantic priming (SP). EL is a form of learning, in

which the occurrence of errors is diminished in the acquisition phase. Yet, previous work is limited by not controlling for the occurrence of errors in the counter-condition, the trial and error/errorful learning condition (TEL). In the proposed study, we control for this, which will help us to understand the underlying mechanism of EL and to develop other learning strategies in dementia. While most MCI and MD patients report problems in memory, some others also show a decline in language. By means of a semantic priming paradigm, in which related items need to be inhibited, and in combination with magnetic resonance imaging (MRI) as well as diffusion-weighted imaging (DWI), we will investigate how the observed problems in language are related to difficulties in lexical access (part of the memory system) and executive function, resulting from a decline in pathways connecting the brain networks associated with these processes.

Study objective

The aim of this study is to assess the memory system in MCI and mild dementia via errorless learning and semantic priming.

Study design

Observational study with a cross-sectional design. Pending on whether inclusion and exclusion criteria are met, patients* behavioural measures will be compared as part of the EL investigation or in SP patient*s behavioural and structural brain measures will be compared to that of matched controls.

Study burden and risks

The currently proposed paradigms and MRI procedure are of negligible risk and minimal burden. Volunteers can withdraw from the study at any given time and there are no direct benefits for the participants. The novel insights will broaden our understanding of the memory system in MCI and MD and will aid in developing therapeutic strategies.

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

between 50-85 years of age
MCI (amnestic or multi-domain, CDR=0.5) or mild dementia (CDR=1)
native Dutch speaker
capable of giving informed consent

Exclusion criteria

MCI due to vascular diseases
primary progressive aphasia
use of psychotropic medication or recreational drugs
serious head trauma or brain surgery
neurological or psychiatric disorders (other than MCI)
claustrophobia (for MRI-study)
large or ferromagnetic metal parts in the head (except for a dental wire; for MRI-study)
implanted cardiac pacemaker or neurostimulator (for MRI-study)

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	19-11-2018
Enrollment:	30
Type:	Actual

Ethics review

Approved WMO Date:	05-11-2018
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	21-01-2019
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

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	NL66434.091.18