Clarifying the Vascular Aspects of Dementia

Published: 20-08-2019
Last updated: 09-04-2024

Objective: 1. To determine whether vascular reactivity is lowered in memory clinic patients with mixed and pure AD pathology. 2. To define whether vascular reactivity upon visual activation is associated with CAA or with other small vessel disease (...

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

Summary

ID

NL-OMON55875

Source
ToetsingOnline

Brief title
Vascular aspects in dementia

Condition

- Other condition
- Vascular haemorrhagic disorders

Synonym
Alzheimer's disease, dementia

Health condition

hersenaandoening

Research involving
Human

Sponsors and support

Primary sponsor: Leids Universitair Medisch Centrum
Source(s) of monetary or material Support: Veni ZonMW ,Alzheimer NL

Intervention

Keyword: Cerebral amyloid angiopathy, Dementia, functional MRI, small vessel disease

Outcome measures

Primary outcome

Main study parameters/endpoints: 1) 3T MRI: the amplitude of the BOLD response in percentage signal change between stimulus on and off, time-to-peak response (sec), and time-to-baseline (sec) after discontinuation of the visual stimulus, classic signs of CAA (intracranial hemorrhage, lobar microbleeds, subarachnoidal hemorrhage and superficial siderosis) and SVD markers (number of small subcortical infarcts and lacunes, volume of white matter hyperintensities (WMHs), perivascular spaces in the basal ganglia and centrum semiovale, number and location of microbleeds and grey matter volume). 2) Neuropsychological assessment 3) Baseline characteristics, 4) DNA: APOE * genotype.

Secondary outcome

NA

Study description

Background summary

Rationale: In patients with Alzheimer*s disease (AD), cerebral amyloid angiopathy (CAA) is a frequently found co-morbidity at autopsy. Post-mortem studies have shown that up to 98% of AD patients show moderate to severe CAA, however currently clinical data are limited. Recent research shows a prominent role of vascular damage as first hallmark of AD. Therefore, detection of CAA in

patients with AD offers increased insight into etiology of AD, and is expected to be helpful in the development of efficient therapies against AD. Vascular reactivity measured with BOLD MRI is a sensitive quantitative marker of vessel damage in hereditary CAA, even before classical radiological hallmarks of the disease become overt. This opens the possibility to study early, or subtle, manifestations of CAA as comorbidity in AD at several stages of the disease. Hypotheses are that increasing dementia severity associates with decreasing vascular reactivity.

Study objective

Objective: 1. To determine whether vascular reactivity is lowered in memory clinic patients with mixed and pure AD pathology. 2. To define whether vascular reactivity upon visual activation is associated with CAA or with other small vessel disease (SVD) neuroimaging markers and cardiovascular risk factors. 3. To establish whether vascular reactivity is independently associated with (additional) cognitive deficits.

Study design

Study design: Observational cross sectional case-control study.

Study burden and risks

Nature and extent of the burden and risks associated with participation, benefit and group relatedness: This is a non-therapeutic group relatedness study in only capacitated subjects. In order to achieve the aim of the study AD patients are needed. Vascular reactivity has potential to determine the role of the vascular aspects in AD. The risks of this research are minimal (risk of every day life), because there are no consequences to the health of the participant. We will keep the charges at a minimum. The research will only consist of a 30-45 minutes MRI scan, a neuropsychological assessment of 1 hour (if not already performed at memory clinic) and collection of 2 ml saliva.

Contacts

Public
Leids Universitair Medisch Centrum

Albinusdreef 2
Leiden 2300 RC
NL
Scientific
Leids Universitair Medisch Centrum

Albinusdreef 2
Leiden 2300 RC
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Patients who attended the memory clinic of the Leiden University Medical Center/ Bronovo/ Reinier de Graaf hospital within one year ago
• Diagnosed with probable Alzheimer's disease
• Diagnosed as Mild cognitive impairment
• Diagnosed as Subjective cognitive impairment
• Diagnosed as Vascular dementia
• Capable of giving informed consent (see appendix)Control subjects
• Healthy adults without memory complaints aged between 40-90 years old
t>üâ

Exclusion criteria

- Contra-indication to MRI scanning:
• Claustrophobia
• Pacemakers and defibrillators
• Nerve stimulators
• Intracranial clips
• Intraorbital or intraocular metallic fragments
• Cochlear implants
• Ferromagnetic implants
• Hydrocephaluspump
• Intra-utrine device (not all types)
• An iron wire behind the teeth

• Permanent make-up
• Tattoos above the shoulders (not all)- Specific contraindications to fMRI
• Seizure within prior year.
• Noncorrectable visual impairment.- MMSE < 19 points (measured at moment of screening or at memory clinic with a maximum of 6 months in retrospect) (this cutoff was also used in the Leiden 85-Plus study30)
- Severe physical restrictions (completely wheelchair dependent)
- Age above 90

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	11-10-2019
Enrollment:	280
Type:	Actual

Ethics review

Approved WMO

Date:	20-08-2019
Application type:	First submission
Review commission:	METC Leiden-Den Haag-Delft (Leiden)
	metc-ldd@lumc.nl

Approved WMO

Date:	07-07-2021
Application type:	Amendment
Review commission:	METC Leiden-Den Haag-Delft (Leiden) metc-ldd@lumc.nl

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	NL69241.058.19