Are the levels of Advanced Glycation Endproducts (AGE*s) associated with Paratonia in Alzheimer*s Disease (AD)?

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Investigate the degree of association between the level of AGE*s and the development and progression of paratonia in Alzheimer*s Disease (AD).Research questions are:(1) Are elevated levels of AGE*s, at baseline and during 12 months follow-up,...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Glucose metabolism disorders (incl diabetes mellitus)
Study type	Observational non invasive

Summary

ID

NL-OMON38761

Source
ToetsingOnline

Brief title
PARAGE

Condition

- Glucose metabolism disorders (incl diabetes mellitus)
- Movement disorders (incl parkinsonism)
- Dementia and amnestic conditions

Synonym
Paratonia/ Movement stiffness

Research involving
Human

Sponsors and support

Primary sponsor: Hanzehogeschool Groningen

Source(s) of monetary or material Support: Ministerie van OC&W,Alzheimer Nederland

Intervention

Keyword: Advanced Glycation Endproducts (AGE'S), Alzheimer's Disease, Movement disorders, Paratonia

Outcome measures

Primary outcome

1) The presence of paratonia will be assessed with the Paratonia Assessment

Instrument (PAI)

2) The severity of present paratonia, assessed with the Modified Ashworth Scale

(MAS)

Explanatory endpoint) the skin tissue levels of Advanced Glycation Endproducts

(N*-CML & Pentosidine), determined by skin autofluorescence (AGE-reader).

Secondary outcome

1) The patient*s functional mobility, assessed with the Timed Up and Go (TUG)

2) Quality of life will be assessed with the QoL-AD

3) Activities of Daily living (ADL) assessed with the Groningen Activity

Restriction Scale (GARS) and the Barthel Index

4) Daily activity level will be assessed with the pedometer

Patients* characteristics at baseline: Gender, age, date of dementia diagnosis,

comorbidity (chart diagnosis, including the presence of diabetes mellitus) and

the use of medication, global deterioration stage (GDS) [Reisberg 1982] and

Mini Mental State Examination (MMSE) [Folstein 1975].

Study description

Background summary

PARAGE
Paratonia (PAR) and Advanced Glycation Endproducts (AGE)
A study by lectoraat Transparante Zorgverlening Hanze University of Aplied sciences Groningen funded by Alzheimer Netherlands

Paratonia is a distinctive form of hypertonia in Alzheimers Disease (AD). This type of hypertonia can already be present in the early stage of AD causing movement disorders and has a negative impact on the functional mobility. This decline of functional mobility has been identified as a significant risk factor for falls in dementia. Paratonia is present in almost all patients in the later/severe stages of AD (prevalence 90-100% Souren 1997, Hobbelen 2006) and movement becomes almost impossible with a further loss of mobility, severe contractures and pain resulting in a decrease of the quality of life.
The pathogenesis of paratonia is not well understood and there are currently no effective interventions against paratonia. Recently we found that patients in early stage dementia and with Diabetes Mellitus (DM) had a significantly higher risk for the development of paratonia in comparison with those without DM (OR=10.7). [Hobbelen 2011] Interestingly, both AD and Diabetes Mellitus are related to higher serum concentrations of Advanced Glycation Endproducts (AGE*s). Therefore we hypothesize that increased AGE levels are associated with the development and progression of paratonia
If the hypothesis of an association between AGE*s and paratonia is true, new pathways can be explored in unravelling the pathophysiology of paratonia as well as new possibilities to prevent or postpone paratonia.
With a strong association next trials can target on AGE*s and study if paratonia is influenced by this. Novel insight opens new possibilities with possibly new and relatively simple low-costs treatment methods to target paratonia such as prevention of further accumulation, cleavage of already formed AGE*s or AGE inhibition with drug targeting AGE levels possibly in combination with physiotherapy(Meerwaldt 2008) This could results in great advantages for both patients and caregivers and at the long-term health care costs.

Study objective

Investigate the degree of association between the level of AGE*s and the development and progression of paratonia in Alzheimer*s Disease (AD).

Research questions are:
(1) Are elevated levels of AGE*s, at baseline and during 12 months follow-up, associated with a higher incidence of paratonia?

(2) Are elevated levels of AGE*s, at baseline and during 12 months follow-up, associated with the severity of and worsening of paratonia?
(3) Are elevated levels of AGE*s, at baseline and during 12 months follow-up, associated with the impairment and deterioration of functional status, mobility and quality of life?

Study design

A longitudinal observational cohort study with a 1-year follow-up in patients with dementia in day-care centers.

Study burden and risks

A total of 3 assessments will be performed at the day-care centers; at baseline, and after 6 and 12 months.
Every assessment will last approximately 20 minutes per participant and consists of measuring skinlevel AGE'S with a non invasive AGE reader, functional fysical tests (often part of usual assessment by physiotherapists) and filling in a questionair (QOL=AD)

Contacts

Public
Hanzehogeschool Groningen

Eyssoniusplein 18
Groningen 9714 CE
NL
Scientific
Hanzehogeschool Groningen

Eyssoniusplein 18
Groningen 9714 CE
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

- Community dwelling patients with Alzheimer's Disease (AD) , with an established diagnosis according to the NINCDS-ARDRA criteria visiting day-care facilities.
- Able to walk 10 meters unassisted (walking aid is allowed)
- A GDS Reisberg score of 2,3,4 or 5 (the GDS Reisberg is a 7-point scale indicating the severity of cognitive and functional decline in Alzheimer*s disease, from 1= No subjective complaints of memory deficits to 7= Basic psychomotor skills and verbal ability are lost and require assistance in toileting and feeding)
- Having a plain colored skin (Caucasian)(due to the limitations of the AGE-reader device)

Exclusion criteria

- Established diagnosis of dementia type other than AD or mixed forms like AD and vascular dementia or AD and Parkinson*s disease
- Using psychotropic drugs, as these drugs can possibly mimic paratonic rigidity.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	10-12-2013
Enrollment:	165

Type:	Actual

Ethics review

Approved WMO Date:	06-12-2013
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Not approved Date:	19-02-2015
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	ID
CCMO	NL43641.042.13

Study results

Date completed:	01-10-2015
Actual enrolment:	144