Synaptic density and tau pathology in Alzheimer's disease

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This study has been transitioned to CTIS with ID 2024-517636-22-00 check the CTIS register for the current data. The main objective of the present study is to investigate the association between in vivo regional synaptic loss ([18F]SynVesT-1 PET),...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Structural brain disorders
Study type	Observational invasive

Summary

ID

NL-OMON52558

Source
ToetsingOnline

Brief title
SYNAPSE

Condition

- Structural brain disorders
- Dementia and amnestic conditions

Synonym
Alzheimer's disease, dementia

Research involving
Human

Sponsors and support

Primary sponsor: Vrije Universiteit Medisch Centrum
Source(s) of monetary or material Support: ZonMw

Intervention

Keyword: Alzheimer's disease, PET, Synaptic density, Tau

Outcome measures

Primary outcome

Main parameters include the quantification of regional [18F]SynVesT-1 (synaptic density) uptake and regional [18F]flortaucipir (tau) uptake. The main endpoint includes the associations of (spatial) [18F]SynVesT-1 with regional [18F]flortaucipir.

Secondary outcome

Secondary endpoints include the association of (spatial) [18F]SynVesT-1 and [18F]flortaucipir to neuropsychological performance based on test scores.

Study description

Background summary

With the introduction of the positron emission tomography (PET) tracer [18F]SynVesT-1, it is now possible to visualize and quantify in vivo synaptic density in the human brain. Synapses are crucial for cognitive function, and post-mortem studies have indicated synaptic loss as the closest pathological correlate of cognitive decline in patients with mild cognitive impairment (MCI) and Alzheimer*s Disease (AD) dementia In vivo imaging of synaptic loss and tau pathology could provide novel insights in disease mechanisms underlying AD and potentially new prognostic biomarkers. By concurrently investigating two AD hallmarks, this study holds potential to investigate complex disease mechanisms, which holds great importance for the development of therapeutic targets.

Study objective

This study has been transitioned to CTIS with ID 2024-517636-22-00 check the CTIS register for the current data.

The main objective of the present study is to investigate the association

between in vivo regional synaptic loss ([18F]SynVesT-1 PET), in vivo regional tau pathology ([18F]flortaucipir PET). Secondary objectives include to assess the associations with cognition.

Study design

Cross-sectional study.

Study burden and risks

There is no individual benefit from the current study. Risks associated with participation in this study are related to 1) radiation exposure, 2) idiosyncratic reaction to the tracer, and 3) discomfort during scanning. Results of the current study are deemed important as it could lead to a better understanding of the disease mechanisms underlying development and progression of cognitive decline in AD, and is therefore regarded by the researchers as very meaningful.

Contacts

Public
Vrije Universiteit Medisch Centrum

De Boelelaan 1117
Amsterdam 1081HV
NL
Scientific
Vrije Universiteit Medisch Centrum

De Boelelaan 1117
Amsterdam 1081HV
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

- At least 50 years of age;
- Biomarker evidence (CSF or PET) for the presence of Aβ pathology.
- Subjects must, in the opinion of the principal investigator/attending neurologist, be able to tolerate study procedures and be competent to make a well-informed decision to participate in this study;
- Signed informed consent for Amsterdam Dementia Cohort 2016.061);

Exclusion criteria

- Has contra indications for MRI scanning and therefore has and cannot receive brain MRI;
- Has evidence of structural abnormalities such as major stroke or mass on MRI that is likely to interfere with the clinical presentation and/or interpretation of PET scan;
- Is a woman of childbearing potential who is not surgically sterile, not refraining from sexual activity or not using reliable methods for contraception. Women of childbearing potential must orally confirm not to be pregnant or breast feeding at screening;
- Has a relevant history of severe drug allergy or hypersensitivity. Relevant severe drug allergies should be determined by the Principal Investigator;
- Has ever participated in an experimental study with a tau, amyloid or synapse targeting agent, unless it can be documented that the subject received only placebo during the course of the trial;
- Has been injected with a previously administered radiopharmaceutical within 6 terminal half-lives or when total yearly radiation exposure exceeds 11.3 mSv for females and 15.3 mSv for males;
- History of any clinically significant cardiovascular, endocrinology, hematologic, hepatobiliary, immunologic, metabolic, urologic, pulmonary, neurologic (with the exception of AD), psychiatric, renal or other major disease, as determined by the principal investigator;
- Is a member of the study team, an employee of the department of Radiology and Nuclear medicine or the department of Neurology of the Amsterdam UMC, or is related to an employee of department of Radiology and Nuclear medicine or the department of Neurology of the Amsterdam UMC.
- The following medications during the study and 4 weeks prior to [18F]SynVesT-1 PET:

o Use of anticonvulsant medications;
o Other medications that, in the opinion of the Investigator, may interfere with the study.

Study design

Design

Study phase:	2
Study type:	Observational invasive
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruiting
Start date (anticipated):	08-04-2024
Enrollment:	30
Type:	Actual

Medical products/devices used

Product type:	Medicine
Brand name:	[18F]flortaucipir
Generic name:	[18F]flortaucipir
Product type:	Medicine
Brand name:	[18F]SynVesT-1
Generic name:	[18F]SynVesT-1

Ethics review

Approved WMO

Date:	13-04-2023
Application type:	First submission

Review commission:	METC Amsterdam UMC
Approved WMO Date:	08-06-2023
Application type:	First submission
Review commission:	METC Amsterdam UMC
Approved WMO Date:	10-07-2024
Application type:	Amendment
Review commission:	METC Amsterdam UMC
Approved WMO Date:	03-09-2024
Application type:	Amendment
Review commission:	METC Amsterdam UMC
Approved WMO Date:	24-10-2024
Application type:	Amendment
Review commission:	METC Amsterdam UMC

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
EU-CTR	CTIS2024-517636-22-00
EudraCT	EUCTR2020-002511-22-NL
CCMO	NL74184.029.21