Visual field analysis and diffusion tensor imaging after temporal lobectomy to map the functional anatomy of the anterior optic radiations

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The main goal of this study is to map the functional anatomy of the anterior optic radiations by correlating the visual field defects to the surgical defects in Meyer*s loop in epilepsy patients after temporal lobectomy.

Ethical review	Approved WMO
Status	Pending
Health condition type	Seizures (incl subtypes)
Study type	Observational non invasive

Summary

ID

NL-OMON33593

Source
ToetsingOnline

Brief title
VFA and DTI after TL

Condition

- Seizures (incl subtypes)
- Nervous system, skull and spine therapeutic procedures

Synonym
visual field defect

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Utrecht
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: diffusion tensor tractography, optic radiation, temporal lobectomy, visual field defect

Outcome measures

Primary outcome

Resection size measured directly within Meyer*s loop using tractography and

amount of post-operative visual field defects.

Secondary outcome

Visual acuity, pupil reactions, eye position, extra-ocular motility, optic disc

color and C/D ratio

Study description

Background summary

The optic radiation is a very important brain structure, situated in the temporal lobe and connecting the lateral geniculate body with the visual cortex. Current knowledge of the functional anatomy of the optic radiation is based on the classical theory of Van Buren and Baldwin, dating from 1956. According to this theory, the most anterior fibers of the optic radiation, also called *Meyer*s loop*, represent the visual field sector adjacent to the vertical meridian. As one proceeds further backwards within Meyer*s loop, the corresponding visual field extends radially into the inferior quadrant.
Visual field defects produced by a temporal lobe resection in patients with intractable epilepsy provide valuable information on the anatomy of the optic radiations. However, in the literature there is a lot of discussion regarding frequency, size and shape of these visual field defects. Strong evidence to either support or reject the classical theory on the functional anatomy of the optic radiation is still lacking.

Study objective

The main goal of this study is to map the functional anatomy of the anterior optic radiations by correlating the visual field defects to the surgical defects in Meyer*s loop in epilepsy patients after temporal lobectomy.

Study design

Observational, prospective cohort study.
Methods: before and after temporal lobe resection, patients will undergo visual field examination (Peritest and Goldmann) and diffusion tensor imaging. Using the diffusion tensor images, tractography will be performed to visualize the optic radiations.

Study burden and risks

No risks are associated with participation in the study. Ophthalmologic examination, visual field analysis and diffusion tensor imaging are part of the clinical routine. For our patients, the only burden is a second visual field examination (Goldmann perimetry), which takes approximately 20 minutes pre- and post-operatively.

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

18-75 years old
temporal lobectomy

Exclusion criteria

tumor, other space-occupying lesion
pre-operative visual field defect
unreliable visual fields
poor cooperation

Study design

Design

Study type: Observational non invasive

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

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-01-2009
Enrollment:	50
Type:	Anticipated

Ethics review

Approved WMO Date:	14-07-2009
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

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	NL26291.041.08