# Neurocognitive functioning and functional connectivity in meningioma patients: a magnetoencephalography study

Published: 11-10-2007 Last updated: 08-05-2024

Exploring (1) cognitive functioning in WHO grade I meningioma patients, and (2) the relation between cognitive functioning and functional connectivity in this patient group.

Ethical review	Approved WMO
Status	Pending
Health condition type	Nervous system neoplasms malignant and unspecified NEC
Study type	Observational non invasive

# Summary

### ID

NL-OMON30843

**Source** ToetsingOnline

**Brief title** Cognition & functional connectivity in meningioma patients

# Condition

• Nervous system neoplasms malignant and unspecified NEC

Synonym brain tumor, cancer

**Research involving** Human

# **Sponsors and support**

**Primary sponsor:** Vrije Universiteit Medisch Centrum **Source(s) of monetary or material Support:** Stichting Klinische Neurowetenschappen;VU

1 - Neurocognitive functioning and functional connectivity in meningioma patients: a  $\ldots$  2-06-2025

### Intervention

Keyword: cognition, functional connectivity, magnetoencephalography, meningioma

### **Outcome measures**

#### **Primary outcome**

Main study parameters are cognitive functioning (measured by an extensive

neuropsychological test battery) and MEG-measures of functional connectivity

(synchronization likelihood).

#### Secondary outcome

n.v.t.

# **Study description**

#### **Background summary**

Patients with meningiomas often suffer from cognitive disturbances, but relatively few studies have been published on this subject. Disturbances in executive functioning seem to predominate in these patients, but memory, language, concentration and orientation impairments have also been reported. The precise pattern of cognitive deficits in meningioma patients remains to be further investigated.

Evidence has accumulated that higher cognitive functions require functional interactions, or connectivity, between multiple distinct neural brain networks. Functional connectivity \* as this notion is termed \* thus relies not only on anatomical, but also on functional interactions between several brain regions. Magnetoencephalography (MEG) is an excellent way to capture the dynamics of the electromagnetic fields of the brain, which can help us understand how functional connectivity relates to cognitive functioning in several patient groups.

Functional connectivity has been proven to differ in brain tumor patients, relative to healthy controls. Moreover, we recently found low-grade glioma patients to have altered levels of functional connectivity, which were correlated with disturbed cognitive functioning. The relation between functional connectivity and cognitive functioning in meningioma patients has not been investigated yet.

#### **Study objective**

Exploring (1) cognitive functioning in WHO grade I meningioma patients, and (2) the relation between cognitive functioning and functional connectivity in this patient group.

#### Study design

Multi-centre cross-sectional study.

#### Study burden and risks

The burden associated with participation for patients consists of (1) a visit to the outpatients\* clinic, (2) administration of a neuropsychological test battery, which will be administered in the patients\* home, and (3) examination through magnetoencephalography (MEG). No health-related risks are involved in this study. In our view, the burden for meningioma patients associated with participation is proportionate to the potential value of this research.

# Contacts

#### Public

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# **Trial sites**

# **Listed location countries**

Netherlands

# **Eligibility criteria**

3 - Neurocognitive functioning and functional connectivity in meningioma patients: a ... 2-06-2025

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

### **Inclusion criteria**

(1) Adult (> 18 years), (2) histologically proven meningioma WHO grade I, (3) no clinical or radiological signs of tumor progression for at least one year prior to inclusion date, (4) end of treatment at least one year prior to inclusion, and (5) written informed consent.

## **Exclusion criteria**

Use of centrally acting drugs, including corticosteroids, other than antiepileptic drugs, (2) a medical condition that interferes with normal cognitive functioning, (3) cerebrovascular pathology, (4) congenital CNS malformations, (5) multiple sclerosis, (6) Parkinson\*s disease, (7) psychiatric disease or symptoms, (8) optic nerve meningiomas, (9) insufficient mastery of the Dutch language, and (10) inability to communicate adequately.

# 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):	01-10-2007
Enrollment:	20
Туре:	Anticipated

# **Ethics review**

Approved WMO Application type: Review commission:

First submission 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** CCMO ID NL18603.029.07