Brain imaging in alcohol-responsive and alcohol-resistant essential tremor

Published: 03-08-2023 Last updated: 08-02-2025

To determine differences in brain activation and networks in alcohol responsive essential tremor versus alcohol resistant essential tremor.

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Movement disorders (incl parkinsonism)
Study type	Observational invasive

Summary

ID

NL-OMON53290

Source ToetsingOnline

Brief title BARET

Condition

Movement disorders (incl parkinsonism)

Synonym essential tremor, trembling

Research involving Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Source(s) of monetary or material Support: ZonMW Off Road subsidie

Intervention

Keyword: Alcohol, Essential tremor, fMRI, Neuroscience

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Outcome measures

Primary outcome

Tremor related brain activation will be investigated with EMG and

accelerometry, as a measure for tremor, and fMRI, as a measure for brain

activity.

Secondary outcome

Secondary study parameters apart from EMG-fMRI:

- Resting state fMRI
- Task based fMRI (non-EMG)
- Anatomical MRI
- MoCA scores as covariate

Secondary study parameters related to measures of alcohol responsivity include:

- Bain Findley Spirographs
- Fahn-Tolosa-Marina Essential Tremor Rating Scale, part A, B and C, as a

comprehensive measure of baseline tremor severity

- Visual Analogue Scale, as a patient-based measure of tremor severity
- Blood alcohol level measured with a breath analyser

Study description

Background summary

Essential tremor is a common movement disorder and prevalence increases with age. Treatment response is unpredictable, the strongest known tremor suppressor is a low-moderate dose of alcohol: 46% of patients show a clear beneficial response, while the other 54% do not. This difference in alcohol response may arise from differences in pathophysiology. Currently, it is clear that essential tremor arises from pathological oscillations in the

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cerebello-thalamo-cortical circuit. It is unknown whether the role of the cerebellum in essential tremor pathophysiology differs between individuals, nor if these differences predict the response to treatment. We hypothesize that differences in brain activity underly alcohol-responsive versus alcohol-resistant essential tremor.

Study objective

To determine differences in brain activation and networks in alcohol responsive essential tremor versus alcohol resistant essential tremor.

Study design

Cross-sectional study that also includes an intervention. In summary, alcohol-responsive and alcohol-resistant essential tremor patients as well as healthy participants will be included in whom we will investigate tremor-related brain activity in an ON/OFF-alcohol paradigm by means of functional MRI.

Study burden and risks

The burden on participants will consist of the time spent on this project: participation will consist of 1 alcohol responsivity test performed at home for all essential tremor patients, and of 2 visits to the UMCG for fMRI-scans, once without alcohol intake and once after alcohol intake, for all participants. Moreover, alcohol intake will result in mild intoxication, which may lead to slight discomfort or inconvenience as it places constraints on activities such as participating in traffic or handling machinery. In essential tremor patients, alcohol intake may lead to a reboud effect with transiently increased tremor the following morning. There is no direct benefit for individuals to participate in this study, however, we expect the results will improve our understanding of essential tremor pathophysiology and this may lead to more effective treatment for these patients.

Contacts

Public Selecteer

Hanzeplein 1 Groningen 9700 RB NL **Scientific** Selecteer

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Hanzeplein 1 Groningen 9700 RB NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

- Diagnosis of essential tremor

- Age of 18 years or older

Exclusion criteria

- Pregnancy
- History of (previous) alcohol misuse
- Medication incompatible with alcohol intake
- No alcohol consumption in the previous year
- MR contra-indications. Presence of MR-incompatible metals for instance after surgical procedures may be verified with a single X-ray if clinical documentation is insufficient.

For participants with essential tremor:

- (Very) mild tremor

For healthy participants:

- A first degree relative with essential tremor.
- Cognitive impairments defined as MoCA <26

Study design

Design

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

Recruitment

NL	
Recruitment status:	Recruiting
Start date (anticipated):	21-11-2023
Enrollment:	60
Туре:	Actual

Ethics review

Approved WMO	
Date:	03-08-2023
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)
Approved WMO	
Date:	08-01-2025
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

ССМО

ID NL83904.042.23