Brain Network Analysis in Hallucinations using Magnetoencephalography

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1) Can changes in functional brain networks in patients with and without hallucinations from several psychiatric, neurological, and perceptual disorders be detected? And if so, what is the pattern of change in these diseases?2) Are specific changes...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Hearing disorders
Study type	Observational non invasive

Summary

ID

NL-OMON42919

Source
ToetsingOnline

Brief title
Understanding Hallucinations - MEG

Condition

- Hearing disorders
- Movement disorders (incl parkinsonism)
- Schizophrenia and other psychotic disorders

Synonym
Hallucinations; hearing voices or seeing things

Research involving
Human

Sponsors and support

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

Intervention

Keyword: Brain networks, Hallucinations, Magnetoencephalography

Outcome measures

Primary outcome

1) Detecting and characterizing functional network changes in different diagnoses underlying hallucinations. Questions that are addressed are: can changes in local and global connectivity be detected in brain networks of patients with and without hallucinations for the different diagnoses? Can brain regions be identified which are more affected than others and can regional differences in network change be related to region-specific properties of the network?

2) Relating specific network changes to specific subtypes of hallucinations. If patterns of change in connectivity or regional changes in brain networks are found within or between different diagnoses, can a relationship with certain subtypes of hallucinations be established?

Secondary outcome

NA

Study description

Background summary

Hallucinations occur in many patients with different kinds of diseases, including psychiatric, neurological and perceptual impairment, as well as in healthy individuals. The origin of these hallucinations is only partly understood. This prevents correct prediction of treatment response and hampers the development of new, more effective treatment strategies. At present, treatment is mainly defined by the underlying diagnosis, but different subtypes

of hallucinations resulting from different neuropathology may exist across diagnostic entities, and be responsive to different treatment strategies. Understanding the origin of these subtypes with the use of MEG (magnetoencephalography, a recording of magnetic fields related to brain activity) and modern network theory can help to make rational treatment decisions on an individual basis and enhance the development of innovative treatment paradigms.

Study objective

1) Can changes in functional brain networks in patients with and without hallucinations from several psychiatric, neurological, and perceptual disorders be detected? And if so, what is the pattern of change in these diseases?
2) Are specific changes in functional networks related to different subtypes of hallucinations? We propose to compare functional networks of patients with and without hallucinations, and of hallucinating subjects of different disorders.

Study design

This study is an observational cross-sectional study using MEG and modern network theory to study the neural correlates of hallucinations across different disorders, and to compare these MEG findings to matched subjects without hallucinations.

Study burden and risks

MEG measurements are non-invasive, taking approximately 30 minutes. The procedure is not painful in any way, is not considered to be difficult or stressful, and has negligible risks. The participants are asked to visit VU Medical Center for the investigations, meaning one extra trip to the hospital. If possible, the visit will be combined with clinical appointments. There is no individual benefit from the MEG. The MEG recordings have a higher spatial resolution compared to the conventional electroencephalography (EEG). Total visit time, including preparations, and a break between measurements, will be approximately 2,5 hours. The potential benefit to society in the future is considerable if the findings lead to optimization of treatment strategies and accurate prediction of treatment response.

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

- Written informed consent for the study NL42959
- For the patient group: diagnosis of one of the following disorders: schizophrenia spectrum disorder, Parkinson*s disease, dementia with Lewy bodies, hearing loss
- For the patient control group: no hallucinations in the past two years, and lifetime no more than one week and one episode of hallucinations
- For healthy controls: no hallucinations in the past two years, and lifetime no more than one week and one episode of hallucinations, and no current psychiatric, neurological or perceptual disorder
- Mentally competent, as determined by researcher during informed consent meeting preceding study visit
- Written informed consent
- Age * 18;In case of the diagnostic group with hallucinations: patients have to have experienced one of these symptoms at least once within the last 30 days.

Exclusion criteria

- Age < 18
- Participants that cannot read, speak or understand Dutch

- Mentally incompetent individuals who are not capable to provide informed consent, as determined by researcher during informed consent meeting preceding study visit
- For the patient control group: history of hallucinations in past two years and/or lifetime more than one week and one episode of hallucinations
- For the healthy controls: history of hallucinations in past two years and/or lifetime more than one week and one episode of hallucinations, and/or any current psychiatric, neurological or perceptual disorder
- Conditions that will cause excessive MEG artifacts (cardiac pacemaker / cardiac or neural defibrillators, metal fragments in the eyes, metal plates, pins or bolts in head, any magnetic implantation / implantations made from iron (ferrous products)

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	14-10-2016
Enrollment:	200
Type:	Actual

Ethics review

Approved WMO

Date:	11-05-2016
Application type:	First submission
Review commission:	METC Amsterdam UMC

Approved WMO

Date:	02-09-2016
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
CCMO	NL56810.029.16