

Abnormal language lateralisation in schizophrenia: Causal relations investigated with TMS

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Ethical review	Approved WMO
Status	Pending
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON31762

Source

ToetsingOnline

Brief title

Abnormal language lateralisation in schizophrenia

Condition

- Other condition

Synonym

Psychotic disorder, split mind

Health condition

schizofrenie

Research involving

Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum

Source(s) of monetary or material Support: NWO (project nummer;400-04333)

Intervention

Keyword: Language, neural substrate, reduced lateralisation, schizophrenia, transcranial magnetic stimulation

Outcome measures

Primary outcome

Performances on cognitive tasks (reaction times and accuracy scores)

Secondary outcome

not applicable.

Study description

Background summary

ABNORMAL LANGUAGE LATERALISATION IN SCHIZOPHRENIA, CAUSAL RELATIONS INVESTIGATED WITH TMS.

Previous studies have shown, using functional magnetic resonance imaging (fMRI), decreased cerebral lateralisation of language processing in schizophrenia. Specifically, in addition to left hemisphere language areas, patients with schizophrenia recruit right hemisphere homologue areas during language tasks. We hypothesize that this activation of right hemisphere areas reflects a compensatory functional pattern for language processing in schizophrenia. We will investigate whether, using transcranial magnetic stimulation (TMS), right hemisphere homologue areas contribute functionally to language processing in schizophrenia, in contrast to control subjects in which only left hemisphere areas are important for language processing.

Repetitive TMS will be used with a coil centered over the individual language related brain areas (regions determined on the basis of available functional MRI data) where after subjects perform three language tasks. We predict that for all subjects, both healthy controls and patients, performance of the language tasks will decrease after stimulating those areas in the brain that have shown significant activation during a language task in the MRI scanner. In schizophrenia patients these language related areas in the brain are found both in the right and in the left brain, whereas in healthy controls only left

hemisphere areas are activated. Thus, in schizophrenia patients language areas in both hemispheres are stimulated, both leading to reduced performance. In healthy controls the left hemisphere area that shows activation during the fMRI session is stimulated, leading to reduced performance, whereas stimulating the homologue area in the right hemisphere does not lead to reduced performance.

Study objective

The aim of this experiment is to test whether the right sided activity observed in schizophrenics during language processing is either contributing, interfering or just epiphenomenal by nature, as compared to healthy controls with normal left lateralized language activation.

Study design

In this transcranial magnetic stimulation study, brain areas that showed activation during a language task administered in another fMRI study, are stimulated during 20 minutes. In schizophrenia patients we expect areas in both hemispheres are related to language activation, in healthy controls only the left hemisphere will show activation during language processing. After the rTMS train we ask participants to make three language tasks on the computer. Results on these tasks are analysed.

Study burden and risks

First we will inform the participants about our study, and ask them if they are interested to participate. If they are interested we will send or give them an information letter and explain them our study. Subsequently, if someone can and wants to participate, we ask the participant to come two times for the experiment which will take 60 minutes. During each session rTMS will be applied on one of two brain areas, one in the left and one in the right hemisphere, during 20 minutes. After stimulation the subject is asked to perform three tasks on the computer. All are language tasks. From our own experience and from colleagues, we know this is do-able. The subject can stop at every time during the experiment.

There is no direct benefit for the participant. There is no risk in participating in the study, every subjects is checked on TMS exclusion criteria.

Contacts

Public

Academisch Medisch Centrum

Antonius Deusinglaan 2
postbus 196 groningen
Nederland
Scientific
Academisch Medisch Centrum

Antonius Deusinglaan 2
postbus 196 groningen
Nederland

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adults (18-64 years)

Elderly (65 years and older)

Inclusion criteria

diagnosis of schizophrenia

Exclusion criteria

Metal in head of body

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:	Other

Recruitment

NL	
Recruitment status:	Pending
Start date (anticipated):	16-03-2008
Enrollment:	28
Type:	Anticipated

Ethics review

Approved WMO	
Application type:	First submission
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	ID
CCMO	NL20414.042.08