The role of medial prefrontal schema processing and sleep for memory bias in major depression

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

Summary

ID

NL-OMON47044

Source
ToetsingOnline

Brief title
Schema, Sleep and Depression

Condition

- Other condition
- Mood disorders and disturbances NEC

Synonym
depression, mood

Health condition

neurowetenschappelijk onderzoek

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universiteit Nijmegen
Source(s) of monetary or material Support: DCN Radboudumc junior researcher grant

Intervention

Keyword: Depression, Memory, Schema, Sleep

Outcome measures

Primary outcome

The primary aim of this project is to test the hypothesis that in patients suffering from MDD, an mPFC-related presence of negatively toned memory schemas and its interactions with the amygdala contributes to a preferential encoding and subsequent REM sleep-related consolidation of negative stimuli, thus developing and perpetuating a negative memory bias.

As a neurocognitive measure of (valence specific-) schema memory, we will investigate the performance on the false memory recall and recognition task (the remembering of related but never presented words i.e. false alarms) and its neural correlates. Here, we aim to investigate the underlying neural mechanisms (mPFC/ amygdala activity and connectivity) during both encoding and retrieval and relate these to sleep parameters (amount REM, eye movement, power differences per group. Furthermore, SSRIs are known to suppress REM sleep differently depending on acute or chronic intake (Wilson and Argyropoulos, 2005). We therefore aim for disentangling the REM suppressing and non REM suppressing side effects of the prescribed medication and its effects on the memory task,

These measures combined will provide us the opportunity to explore the tight relations between schema memory, memory bias, (REM) sleep and depression in detail.

Secondary outcome

Additionally, we aim to examine the effect of group on mPFC/ amygdala and whole brain post-encoding resting-state connectivity. Using exploratory correlational analyses, we want to test for altered mPFC interactions with the amygdala in particular. We expect these interactions to be augmented in participants suffering from depression and that these interactions are related to enhanced negative false memory persistence and decreased positive memory persistence.

Study description

Background summary

Memory bias for negative information is one of the major cognitive symptoms causing and maintaining Major Depressive Disorder (MDD). The neural mechanisms underlying memory bias are still rather elusive. The recently revived concept memory schemas, denoting preexisting knowledge structures that enhance the encoding and consolidation of new, but related information, may shed new light on the neurocognitive mechanisms underlying memory bias in MDD. Sleep contributes to memory consolidation, with affective and schema-related memories being particularly associated with REM sleep, which in turn is disinhibited in depression. On a neural level, the medial prefrontal cortex (mPFC) essentially contributes to memory schema processing, and shows strong activation during REM sleep.

Study objective

The primary aims are to test the hypothesis that in depressed patients, an mPFC-related presence of negatively toned memory schemas contributes to a preferential encoding and subsequent REM sleep-related consolidation of negative stimuli, thus developing and perpetuating a negative memory bias.

Study design

The study is designed as a between subjects design. The study will include one screening session, two fMRI sessions where a false memory task employed and two nights of polysomnography before and between the MRI sessions.

Study burden and risks

All participants will visit the institute three times in total, including one screening session, two scanning sessions of approximately 60 minutes each and two days-time naps sleep recordings. Although the noise and the relative confined space of the MRI scanner may cause discomfort to some participants, MRI measurements themselves do not pose any risk if appropriate precautions are made. The stay at the institute for the sleep recordings may additionally cause mild discomfort to some participants due to the unfamiliar environment and the attachment of multiple electrodes for sleep positioning. Risks associated with all measurements are however negligible as there will be no measurements of an invasive nature.. There will be no intervention of any kind of ongoing treatment for patients.

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

For patients:
* Males and females between 25-55 years of age
* Patients with an official diagnosed of unipolar major depressive disorder, without psychotic features (as defined by DSM-IV-TR)
* On antidepressant medication (SSRIs) for at least 2 weeks and a Hamilton score between at least 17 and 30.;For controls:
Males and females between 25-55 years of age

Exclusion criteria

* Presence of a current or past relevant somatic disorder
* Presence of comorbid bipolar disorder, schizophrenia or substance abuse disorder
* MRI-related exclusion criteria (i.e. claustrophobia, pregnancy, internal metal objects, etc.)
* Impossibility to obtain a valid informed consent
A control group matched for age and sex will be recruited. Exclusion criteria for the control group will be similar to the exclusion criteria for the treatment group, with the following additions:
* No current or past psychiatric illness

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:	Recruitment stopped
Start date (anticipated):	20-02-2018
Enrollment:	93
Type:	Actual

Ethics review

Approved WMO Date:	29-05-2017
Application type:	First submission
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	29-08-2017
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	24-09-2018
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)
Approved WMO Date:	27-08-2019
Application type:	Amendment
Review commission:	CMO regio Arnhem-Nijmegen (Nijmegen)

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	NL59345.091.16