The role of stress hormones in intentional forgetting

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Anxiety disorders and symptoms
Study type	Interventional

Summary

ID

NL-OMON50092

Source
ToetsingOnline

Brief title
Stress hormones in intentional forgetting

Condition

- Anxiety disorders and symptoms

Synonym
Not applicable

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Maastricht
Source(s) of monetary or material Support: NWO VI.Veni.191G.004

Intervention

Keyword: Intentional memory control, metyrapone, propranolol, stress hormones

Outcome measures

Primary outcome

The primary outcome is the extent of intentional forgetting in the Imagine/No-Imagine task and the underlying neural correlates assessed with electroencephalography (EEG).

Secondary outcome

Additional dependent variables are the neuroendocrine stress markers (cortisol and salivary *-amylase (sAA)) and measures of cognitive functioning (i.e., working memory, inhibition).

Study description

Background summary

We can control our recollections and thoughts by trying to remember certain experiences while trying to forget others, i.e., Intentional memory control. Unfortunately, it appears that intentional forgetting fails exactly when this adaptive function is of utmost importance: when we experience highly negative, or even traumatic, events. Deficits in intentional forgetting have been reported in stress-related psychopathology, such as post-traumatic stress disorder (PTSD). To advance our understanding of these deficits, we first need to understand how the healthy brain intentionally controls emotional memories and, critically, when and why it fails under stress.

Study objective

The aim of this study is to investigate the combined and independent roles of the two major stress hormones, noradrenaline (NA) and cortisol, in intentional forgetting under stress using a pharmacological manipulation. As such, our aim is to administer two medicines that block the two stress hormone systems, in order to gain insight in the mechanism underlying stress-induced impairment in intentional forgetting. The study drugs of choice are propranolol and

metyrapone. We are not interested in the (effectiveness of) medicines themselves, but the outcome of intentional forgetting following a pharmacological manipulation. It is predicted that, in comparison to propranolol and placebo, the blocking of the glucocorticoid (GC) response using metyrapone will result in no impairment in intentional forgetting following acute stress induction.

Study design

The study is a four-armed double-blind between-participants design.

Intervention

Participants will receive either propranolol hydrochloride (40 mg oral administration; a safe challenge that temporarily blocks * -adrenergic receptors) or metyrapone (metopirone©, 750 mg orally administered twice, a safe challenge that temporarily blocks cortisol synthesis) and will thereafter experience an incidence of acute stress induction. Participants in the two placebo conditions will experience an incidence of stress induction or a no-stress control manipulation.

Study burden and risks

Participants will visit our facility at three time points for a screening and one week later for two consecutive days. The screening includes the informed consent, medical screening questionnaire and blood pressure measurement to check for hypertension, a contraindication to propranolol.
Over both test days, participants will complete mental health questionnaires, saliva samples (10 x sampling), a hair sample (1 sample), blood pressure recordings (10 measurements), measures of cognitive functioning and EEG recordings. All sampling procedures are non-invasive. The third visit will consist of taking the study treatments (propranolol 40mg, metyrapone 2x 750mg or placebo) and exposure to a stress manipulation or a control manipulation.
In case they experience (medical) complaints, the medical supervisor will be contacted. The total discomfort experienced by the volunteer is minimal when all precautions are taken into account. Most important precautions are: determining the absence any mental or physical disorder that may interact with propranolol or metyrapone. In addition, the stress manipulation has been shown to be well tolerated (ECP- 77 -3- 01 - 2009 * 2).
In sum, the risk of participation is deemed negligible because both medicines are well tolerated. If there are any side effects, these are mild and of short-lasting nature (please also see section 5.3 and 11 in the research protocol).

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
* Good physical and mental health as determined by medical screening
* Age between 18 and 35
* BMI between 17.5 - 28
* Females: use of hormonal contraceptives
* Native language: Dutch, German or English
* A competent level of English to answer the questionnaires
* Willing to eat yoghurt on test day 3

Exclusion criteria

* Diagnosis of a psychiatric disorder (DSM-V)
* Use of any pharmacological treatment at time of inclusion
* Current recreational drug use/dependence
* Current alcohol dependence
* Pregnancy or plans to get pregnant in the near future;
* Contraindications to metyrapone or propranolol
o Propranolol:
* - Diagnosis of a neurological or cardiac disease
* - Obstructive respiratory disease
* - Hypotension (diastolic< 60mmHg; systolic< 90mmHg);
* - Chronic renal failure
* - Hyperthyroidism
o Metyrapone
* - adrenal insufficiency

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Active
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	20-08-2020
Enrollment:	180
Type:	Actual

Ethics review

Approved WMO Date:	06-07-2020
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)
Approved WMO Date:	03-09-2020
Application type:	Amendment
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

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
Other	https://osf.io
CCMO	NL73481.068.20