(f)MRI parameters and the relation with cognitive and emotional dysfunction in patients after treatment for M. Cushing and a comparison with patients with anxiety and depression

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To study the effects of transient severe endogenous stress hormone exposure on the structure and functioning of brains circuitry regulating emotion, and the association with cognition and psychopathological symptoms.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Hypothalamus and pituitary gland disorders
Study type	Observational non invasive

Summary

ID

NL-OMON36638

Source
ToetsingOnline

Brief title
(f)MRI in Cushing's disease

Condition

- Hypothalamus and pituitary gland disorders

Synonym
Cushing's disease, hypercortisolism

Research involving
Human

Sponsors and support

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

Intervention

Keyword: (f)MRI, cognition, Cushing's disease, NESDA

Outcome measures

Primary outcome

I. What are the (irreversible) effects of M. Cushing on the brain and what is the correlation with psychopathology and cognition?

It is expected that in patients with treated M. Cushing, abnormalities will be found in emotion regulation circuitry (parts of the prefrontal cortex, cingulate cortex, basal ganglia, hippocampus and amygdala) compared with matched controls.

II. Are there shared and unique structural and functional MRI abnormalities in patients with treated M. Cushing and in patients with mood and anxiety disorders?

It is expected that after treatment for M. Cushing, comparable cerebral impairment with comparable correlates with psychopathology are found as in patients with mood and anxiety disorders, compared to controls.

III: Are there any effects of common polymorphisms of genes important for the stress system on the shared and unique functional and structural MRI abnormalities in patients treated for M Cushing and NESDA participants?

It is expected that certain polymorphisms are associated with more pronounced variations and more psychopathology in both treated M. Cushing and depression and anxiety patients, based on a stronger predisposition to dysregulation of the HPA axis, or a greater sensitivity to the harmful effects of high cortisol levels.

Secondary outcome

not applicable

Study description

Background summary

Cushing's disease (M. Cushing) is a rare disorder characterized by an increased endogenous production of the stress hormone cortisol, leading to various physical but also psychological changes. Patients with active M. Cushing show an increased prevalence of various psychiatric disorders, even after successful treatment. It is believed that the pathophysiological models of depressive and anxiety disorders show abnormal activation of the stress axis, which plays a central role and impact in those areas of the central nervous system that are very sensitive to changes in cortisol levels, such as the hippocampus, the amygdala, prefrontal areas and more. Corresponding changes would explain the similarities in psychopathology. If this is correct, M. Cushing is a unique human model to gain more insight into the role and contribution of transient abnormal stress hormone exposure in the pathophysiology of depressive and anxiety disorders, particularly at the level of emotion-regulating brain circuits. This has not been done systematically before.

Study objective

To study the effects of transient severe endogenous stress hormone exposure on the structure and functioning of brains circuitry regulating emotion, and the association with cognition and psychopathological symptoms.

Study design

Patients with treated M. Cushing follow the same structural and functional MRI scanning protocol as previously investigated members of the MRI study of the Netherlands Study on Depression and Anxiety (NESDA). The data are analyzed

according to NESDA.

Study burden and risks

The burden of the participants consists of the MRI scan (1 hour), preparation, questionnaires and saliva collection (1 hour). In total the study will take 2 hours to complete. An MRI scan is accompanied by loud noise. All participants are provided with appropriate hearing protection. There are no expected risks in participating in this MRI study.

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

- men and women between 18 and 55 years of age
- patients treated for M. Cushing by transsphenoidal surgery with or without additional radiotherapy
- adequately substituted
- patients should be prepared and well informed about the study
- patients should sign the informed consent

Exclusion criteria

- difficulty to understand the Dutch language
- history of contusio cerebri
- presence of non-endocrinological impairments which could influence brainstructure or function
- chronic misuse of alcohol or drugs
- medication (other than suppletion) that could influence perfusion or cognition and can not be stopped two days before the scan takes place, with exclusion of SSRI in stable dossage
- contraindications for MRI, such as metal implants, heart arrhythmia, claustrophobia etc.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	02-01-2012
Enrollment:	50
Type:	Actual

Ethics review

Approved WMO

Date:	01-04-2011
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO Date:	17-01-2012
Application type:	Amendment
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)
Approved WMO Date:	08-02-2012
Application type:	Amendment
Review commission:	METC Leids Universitair Medisch Centrum (Leiden)

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	NL34912.058.10