Imaging the Sigma1-receptor with SA4503 and positron emission tomography in depressive disorder

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Ethical review	Approved WMO
Status	Pending
Health condition type	Mood disorders and disturbances NEC
Study type	Observational invasive

Summary

ID

NL-OMON29746

Source
ToetsingOnline

Brief title
The sigma1-receptor in depression

Condition

- Mood disorders and disturbances NEC

Synonym
(Major) Depressive Disorder, depression

Research involving
Human

Sponsors and support

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

Intervention

Keyword: depressive disorder, PET (positron emission tomography), SA4503, sigma1-receptor

Outcome measures

Primary outcome

The main outcome variables will be the distribution volume, the binding

potential and receptor density in the brain. Our hypothesis is that the number

of sigma-receptors will be increased in persons with a depressive disorder.

Secondary outcome

not applicable

Study description

Background summary

A depressive disorder is a serious illness that that causes much suffering and frequently results in chronicity. The cause of a depression is mainly unknown, it has a multifactorial etiology. It is assumed that both biological, psychological and social factors play a role play in the etiology. With respect to the biological factors it is kwnown that several chemical messengers, (or neuro-transmitter systems) play a role. The scientific research of the last decades has pointed in particular at the serotonergic system, the noradrenergic system has received less attention. All available antidepressants exert their effect through serotonergic or noradrenergic systems. Although it has been known for some time that neurotransmitter systems are involved in the pathophysiology of depression, it has hardly received attention. The therapeutic possibilities for the depressive disorder are still far from optimum. Although the currently available antidepressants have reasonable effectivity, still a substantial part of the patients experiences unpleasant sideeffects, frequently leading to noncompliance in the therapy. A subset of patients experience no or a partial response to the prescibed antidepressive drug. Sigma-receptor has already been discovered a number of decades ago. Particularly the sigma1-receptor appears to play a role in many neuropsychiatric disorders. It has not been cleared up yet which substance is endogenous for the sigma-receptor. Substances that stimulate the sigma1-receptor appear to have antidepressant effect. All antidepressives have

a moderate to high affinity for the sigma1-receptor. The antidepressant effect is lost when a sigma1-blocking agent is added. Sigma1-receptor stimulating agents may even exert a stronger antidepressant effect than the SSRI Prozac(R). Because it is not known to what extent medication influences the sigma1-receptors, only drug free subjects (patients and healthy volunteers) will be included in the study.

Study objective

The present research proposal is a study of distribution and density of the sigma1-receptor in the brain. A PET-scan will be used to compare depressed patients to healthy controls. Our hypothesis is that receptor density will be increased in people with a depressive disorder. An increase in sigma1-receptor density (up-regulation) in depressive disorder is a further affirmation for a role for the sigma1-receptor in depression, and brings new therapeutic possibilities a step closer.

Study design

The study is observational, patients will be compared to healthy controls. It is a pilot study, therefore the study groups will be kept small (10 versus 10).

Intervention

not applicable

Study burden and risks

The PET study will take approximately 2 hours for all subjects. Before, participators have been taken a questionnaire (30 min.), and have had oral information from the researcher (30 min.). Taking part in the study brings along radiation burden, which amounts 1.26 mSv. This can be considered as acceptable dose, it falls within the WHO range for medical and scientific purposes. It is not expectable that this exposure will be disadvantageous in any way for the study participators. The PET procedure takes two and a half hour, of which 90 minutes is spent in the camera. Although people may experience as a lenghty part, it is not considered as burdensome. Our experience is that people often fall asleep in the PET scan. However, people may feel burdened by the introduction and dwelling of the arterial canula, and well as os teh venous infusion. Introduction of the arterial canula occurs under local anaesthesia. In an earlier PET-study with depressive people we found the load for participators to be acceptable. Patients and healthy volunteers can make a well-considered choice for taking part in the study when they have received good explanation about the procedure.

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

Fulfilling the criteria for major depression according to DSM-IV-TR criteria
Informed consent.
Regarded by the treating physician to have competence of judgement
Age 18-50 years

Exclusion criteria

Current use of any medication (patients must be drug-free for three weeks) except use of benzodiazepines.
Drug or alcohol abuse in the past year
Prior cardiovascular disease, brain disease (including former traumatic contusion)

Evidence of any general medical disease, e.g. significant kidney or liver disease
Abnormalities at clinical neurological examination
Pregnancy ;(healthy controls): presence in the past of any psychiatric diagnosis, or the presence of a psychiatric disturbance in first-degree relatives of the subject, will be used as an exclusion criterion.

Study design

Design

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

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-10-2006
Enrollment:	20
Type:	Anticipated

Medical products/devices used

Registration:	No

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	NL11850.042.06