Investigating normal variability in brain volumes and cognition in a healthy population.

Published: 10-03-2015
Last updated: 21-04-2024

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Immune disorders NEC
Study type	Observational invasive

Summary

ID

NL-OMON44988

Source
ToetsingOnline

Brief title
Normal variability in brain volumes and cognition

Condition

- Immune disorders NEC
- Schizophrenia and other psychotic disorders

Synonym
brain volume, psychosis

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Utrecht
Source(s) of monetary or material Support: TOP Grant ZonMw

Intervention

Keyword: brain volume, cognition, healthy controls, variability

Outcome measures

Primary outcome

We will measure: 1) grey matter brain volumes as measured with Magnetic Resonance Imaging (MRI); 2) cognitive performance as measured by the Brief Assessment of Cognition in Schizophrenia (BACS). 3) various immunological parameters in serum and peripheral blood mononuclear cells. We will measure normal variation at one timepoint in the above parameters, and compare both timepoints (baseline and follow-up) to establish what can be considered a normal range of change over a one year interval in the above parameters.

Secondary outcome

Secondary study parameter/endpoints are; 1) to explain part of the variability within healthy controls in brain volume and cognitive functioning (as measured by the Brief Assessment of Cognition in Schizophrenia (BACS)) by estimating the contribution of various immunological and metabolic parameters as assessed in blood samples. And 2) the presence and severity of metabolic syndrome as defined by the American Heart Association/National Heart, Lung and Blood Institute (AHA/NHLB; Grundy et al., 2005). Also, the experience of childhood trauma will be assessed using the Childhood Trauma Questionnaire-Short Form (CTQ-SF). Both may also explain part of the normal variance in brain volume and cognitive functioning.

Study description

Background summary

Schizophrenia research is one of the main focusses of the Psychiatry Department in the University Medical Center Utrecht. Cognitive deficits and brain volume loss have been recognized as key features of schizophrenia (Lieberman et al., 2001; van Haren et al., 2008; Dickerson et al., 2011), as well as altered blood markers (Mitchell et al., 2011; Dickerson et al., 2013). Interpretation of findings from these studies is greatly facilitated when a comparison can be made with healthy individuals. However, few studies have focused on what biological measures explain (part of the) normal variability in brain volume and cognition in a sample of healthy controls.

Study objective

The objective of the current study is to obtain normative data of healthy individuals on brain measures, cognition and blood markers. In addition, we acquire information on childhood trauma, metabolic and immunological parameters in a cohort of healthy subjects. This will serve three goals; 1) establish cross-sectional normative data on brain measures and cognitive functioning at two timepoints (baseline and follow-up). We will compare normative data of one timepoint (either baseline or follow-up) with ongoing and future patient studies at the Psychiatry Department of the University Medical Center Utrecht. 2) establish longitudinal normative change data over the course of a one year interval. By comparing baseline to follow-up (12 month) measurements, we will assess changes in brain measures and cognitive functioning. Normative change data will serve as a reference for ongoing and future patient studies using for example interventions (i.e. in which change over time is a main endpoint). This could guide interpretation on what be regarded as deviating in patient populations. Furthermore, 3) it can be investigated whether (part of) the variance in one parameter can be explained by variation in the other parameters. This will be investigated within the healthy cohort of this study. Specifically, we will compare MRI parameters, cognitive functioning, immunological and metabolic blood parameters. The secondary endpoints are assessment of childhood trauma and metabolic syndrome.

Study design

We examine the above-mentioned parameters in healthy individuals at baseline and after an interval of one year in order to establish normative data on baseline, follow-up and change in these measures over one year.

Study burden and risks

Participation in the study will entail two measurement with a one-year interval. The visits will require time investment for the MRI scan (40 minutes), a few physical examinations, questionnaires and two cognitive testing sessions (around 2.5 hours per visit). The MRI scan is not associated with any known risks. Blood will be drawn at two occasions with negligible and known risks (e.g. irritation). The burden and risks are acceptable while the benefits are expected to be considerable.

Contacts

Public
Universitair Medisch Centrum Utrecht

Heidelberglaan 100
Utrecht 3508 GA
NL
Scientific
Universitair Medisch Centrum Utrecht

Heidelberglaan 100
Utrecht 3508 GA
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

1) Age between 18 and 70 years
2) Written informed consent is obtained
3) Female subjects with child-bearing potential need to utilize a proper method of

contraception (the pill, vaginal ring, hormonal patch, intrauterine device, cervical cape, condom, contraceptive injection, diaphragm) in case of sexual during the study

Exclusion criteria

1) MRI contra-indications, e.g.
i. Ferrous objects in or around the body (e.g. braces, glasses, pacemaker, metal fragments)
ii. Claustrophobia
2) Family history with psychiatric illness (i.e. participants themselves, parents, brothers or sisters of the participant
3) Chronic use of glucocorticosteroids (temporary use is permitted, if stopped at least 1 month before start of the study)
4) Chronic use of non-steroidal anti-inflammatory drugs
5) Current use of statins or other lipid-lowering drugs
6) Pregnancy or breast-feeding (urine pregnancy test will be performed for sexually active females with child bearing potential)
7) Presence of diabetes mellitus, severe heart failure, severe osteoporosis or systemic fungal infections as reported by the participant
8) Concurrent use of certain types of medication:
i. liver enzyme inducing medication such as carbamazepine, riphampicine, primidone, barbiturates and phenytoine
ii. HAART (both HIV protease inhibitors and (non)-nucleoside reverse transcriptase inhibitors), especially efavirenz, ritonavir and lopinavir.
iii. telaprevir and boceprevir in treatment of Hepatitis C

Study design

Design

Study type: Observational invasive

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	24-08-2015
Enrollment:	100

Type:	Actual

Ethics review

Approved WMO Date:	10-03-2015
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO Date:	20-05-2015
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO Date:	24-02-2016
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)
Approved WMO Date:	03-07-2017
Application type:	Amendment
Review commission:	METC Universitair Medisch Centrum Utrecht (Utrecht)

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	NL50657.041.14