Perceptual decision-making after focal brain injury.
An investigation of the neuroanatomy of speed-accuracy tradeoff and decision making with prior information.

Published: 24-02-2011
Last updated: 04-05-2024

This study should show whether patients with focal BG lesions are impaired in changing the threshold between deliberate fast or accurate conditions, and between conditions with and without prior information. Also, it should show that patients with a...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Central nervous system vascular disorders
Study type	Observational non invasive

Summary

ID

NL-OMON36579

Source
ToetsingOnline

Brief title
Perceptual decision-making after focal brain injury.

Condition

- Central nervous system vascular disorders

Synonym
focal ischemia, stroke

Research involving
Human

Sponsors and support

Primary sponsor: Radboud Universiteit Nijmegen
Source(s) of monetary or material Support: NWO aard-en levenswetenschappen open competitie

Intervention

Keyword: basal ganglia, decision making, prior information, speed-accuracy tradeoff

Outcome measures

Primary outcome

The LBA model parameter estimates per subject, per condition.

Secondary outcome

Mean reaction time per condition. Mean accuracy per condition.

Study description

Background summary

Decision making is highly relevant to everyday life. We can make our decisions quickly or accurately, but usually not both. When making decisions, we use not just the information that is in front of us, but also relevant information we have gathered previously. Previous work using model-based fMRI has implicated the basal ganglia (BG) in setting the decision threshold for speed accuracy tradeoff (Forstmann et al., 2008). Other work has shown BG and orbitofrontal cortex (OFC) activation associated with selective threshold changes in decision making with prior information (Forstmann et al., in submission). In this study we examine the involvement of the BG, OFC and IPS (inferior parietal sulcus) in threshold setting and evidence accumulation. To do so, we will model the behavior of BG, OFC and IPS lesion patients, in addition to healthy controls.

Study objective

This study should show whether patients with focal BG lesions are impaired in changing the threshold between deliberate fast or accurate conditions, and between conditions with and without prior information. Also, it should show that patients with a focal OFC lesion are impaired in changing threshold in decision making with prior information, and that patients with IPS lesions show

lower drift rates overall.

Study design

This is an observational study comparing performance in three clinical groups and a control group. It involves behavioural measures, which will be analyzed using the Linear Ballistic Accumulator model (LBA; Brown & Heathcote, 2008).

Study burden and risks

This study does not put the patients or control subjects at risk. The experiment involves a vist to the research centre, which will take approximately 3.5 hours. This will involve two behavioral tasks, an MRI, and the filling out of questionnaires.

Contacts

Public
Radboud Universiteit Nijmegen

Kapittelweg 29
6500HB Nijmegen
NL
Scientific
Radboud Universiteit Nijmegen

Kapittelweg 29
6500HB Nijmegen
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Elderly (65 years and older)

Inclusion criteria

group 1. Focal ischemic lesion in the basal ganglia, preferably restricted to the striatum.
group 2. Ischemic lesion in prefrontal cortex, preferably matched in age and lesion size to group 1.
group 3. Ischemic lesion in parietal cortex, preferably matched in age and lesion size to group 1.
group 4. Healthy controls, matched in age and education to group 1.

Exclusion criteria

psychiatric or neurological disorders (aside from inclusion criteria). In particular, other ischemic or haemorrhagic strokes.

Study design

Design

Study type:	Observational non invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	07-09-2011
Enrollment:	44
Type:	Actual

Ethics review

Approved WMO

Date:	24-02-2011
Application type:	First submission
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	NL31721.091.10