Functional connectivity of the amygdala and the emotion perception-regulation system in autism

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We aim to investigate amygdalar functional connectivity in young people with autism using non-invasive fMRI measures. Specifically, we aim to investigate the functional connectivity of the amygdalar nuclei to the rest of the brain.

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

Summary

ID

NL-OMON35923

Source
ToetsingOnline

Brief title
Amygdalar connectivity

Condition

- Psychiatric disorders NEC

Synonym
autism, autistic disorder

Research involving
Human

Sponsors and support

Primary sponsor: Universitair Medisch Centrum Sint Radboud
Source(s) of monetary or material Support: Hersenstichting

Intervention

Keyword: adolescents, amygdala, autism, connectivity

Outcome measures

Primary outcome

Size, shape and activation patterns of the brain (specifically amygdala)

measured using (f)MRI.

Secondary outcome

Covariates: handedness, IQ, age, gender.

Study description

Background summary

Autism is a neurodevelopmental disorder that causes a great burden for those with autism and their families. The disorder affects approximately 1-2 per 100 children. Core symptoms include disordered social interaction, communication and restricted-repetitive behavior and interests. The exact neural mechanism underlying this neurodevelopmental disorder is still unclear, although a number of abnormal brain regions have been found. These include the prefrontal cortex and the amygdale, which govern emotion regulation and social behavior. Additionally, many studies have found that the collaboration between brain areas, as measured with functional connectivity, is impaired in autism. Inadequate collaboration between brain areas, especially between the amygdala and prefrontal areas, may therefore explain key symptoms in autism.

Study objective

We aim to investigate amygdalar functional connectivity in young people with autism using non-invasive fMRI measures. Specifically, we aim to investigate the functional connectivity of the amygdalar nuclei to the rest of the brain.

Study design

The study is cross-sectional, observational, and non-invasive. In a period of 6 months, 30 people with autism and 30 age, IQ and gender matched controls will be recruited and scanned at the Donders Institute (Nijmegen) using a 3T MRI scanner.

In a period of 30 minutes both structural and resting state functional scans will be acquired. During the scan period, participants are asked to stay awake but are not presented with any stimulus material. They need not do any particular task, but are asked to keep their eyes open.

The overall period of the study is 1.5 year: 6 months data gathering, including participant recruitment, scanning and acquiring psychometric tests. The results will be analyzed and published in the subsequent year

Study burden and risks

MRI scans do not pose (medical) risks. The burden posed by MRI scanning consists of lying still in a semi-confined space while listening to loud noised, an idea that may be scary for some. However, since 2006 we (the subscriber personally and the Donders Institute as an organization) have gathered a wealth of experience scanning adolescents at the Donders Institute. Using a Dummy MRI scanner, adolescents are able to practice lying still in a MRI scanner that produces noise. This greatly increases confidence for adolescent participants; previous experiences have learned that adolescents (with autism) do not experience scanning as stressful. Of course, all participants can opt out before participation, during practice with the dummy scanner and during the actual scanning.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

participants with autism

Exclusion criteria

IQ<85

Study design

Design

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

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	26-05-2012
Enrollment:	60

Type:	Actual

Ethics review

Approved WMO Date:	24-01-2012
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	NL37006.091.11