The ABCD study: Early life stress and obesity

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Hypothesis: Early life stress is associated with increased caloric intake and subsequent obesity in later life, which may be mediated by (a combination of) decreased neural cognitive control over food intake, decreased neural food reward...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON44523

Source
ToetsingOnline

Brief title
ABCD-ELSO

Condition

- Other condition

Synonym
obesity

Health condition

obesitas

Research involving
Human

Sponsors and support

Primary sponsor: AMC
Source(s) of monetary or material Support: Amsterdam Brain and Cognition Centre project grant,Nutricia Research Foundation project grant

Intervention

Keyword: early life stress, maternal anxiety, obesity, trauma

Outcome measures

Primary outcome

Measures per key objective

1. Caloric intake: calculated from Food Frequency Questionnaire.

2. a. Neural cognitive control over food intake: we will compare fMRI responses

to a food-based Go-No-Go test to measure impulsivity.

b. Neural food reward responsiveness: we will compare fMRI responses

between exposure groups in response to receiving cholate milk versus a

tasteless solution.

c. Satiety: satiety responsiveness based on Child Eating Behaviour

Questionnaire (CEBQ); leptin and ghrelin levels to be assessed from saliva

samples .

d. Emotional eating: quantity of food intake in response to stresstask

during fMRI protocol; Dutch Eating Behaviour Questionnaire.

Perceived stress: in response to stress and based on Perceived Stress

Questionnaire.

e. Food preference: food cue responsiveness based on CEBQ .

f. Cortisol activity: cortisol day curves from saliva (4 samples) and in

response to stresstask during fMRI protocol (4 saliva samples); cortisol from

hair sample (to measure stress over longer period of time).

3. Mental health: total score on Strengths and Difficulties Questionnaire (SDQ)

and on Children*s Revised Impact of Event Scale (CRIES-13) administered at

11-12.

Secondary outcome

Covariates/confounders: maternal characteristics, birth outcomes,

socio-economic status, ethnicity, physical activity, sedentary behaviour and

sleep.

Study description

Background summary

The ABCD - Amsterdam Born Children and their Development - study is a longitudinal multi-ethnic birth cohort examining the association between maternal lifestyle, medical, psychosocial and environmental conditions during pregnancy and children*s health at birth as well as in later life. Recently, at the age of 11-12 years, data was collected on physical measurements including anthropometry, cardiovascular function, metabolic profile, genetic predisposition and mental health.

In the present study, we aim to unravel the potential pathways underlying the association between early life stress (ELS) and increased risk for obesity. For this purpose, we will select a subsample of the ABCD cohort based on maternal anxiety scores during pregnancy, on maternal obesity before pregnancy and on CRIES score of the children at age 11-12 years.

Study objective

Hypothesis: Early life stress is associated with increased caloric intake and subsequent obesity in later life, which may be mediated by (a combination of) decreased neural cognitive control over food intake, decreased neural food reward responsiveness, decreased satiety responses, increased emotional eating, preference for comfort food or altered cortisol activity.

The objectives of the subsample study of the present ABCD-subsample study are: (i) to investigate the association between ELS (prenatal stress, maternal

obesity and childhood stress) and caloric intake
(ii) to test a number of processes that could underlie the association between ELS and increased risk for obesity, including:
a) neural cognitive control over food intake
b) neural food reward responsiveness
c) satiety
d) emotional eating in response to stress
e) food preferences
f) cortisol activity
(iii) to investigate mental health problems as potential moderator or mediator of the association between ELS and the tested processes.

Study design

The ABCD-study is a multi-ethnic prospective birth cohort study. For the present study, a subsample will be selected.

Study burden and risks

In the current study no adverse/serious adverse events are expected. The study imposes no risks to the subjects. Saliva samples and hair samples will be taken for cortisol, leptin and ghrelin measurements,. This is painless and safe. Furthermore, fMRI scanning will be performed. A small percentage of participants may experience claustrophobia or anxiety during scanning. It will therefore be stressed that the procedure can be stopped any moment. A short stress task will be performed based on an existing protocol (Montreal Imaging Stress Task) that has been performed in this age group numerous times and is safe. There is no direct benefit of this study to the participants.
Participants will receive a small present for participating. The procedure will take 3 hours maximum and burden will be kept as low as possible.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adolescents (12-15 years)
Adolescents (16-17 years)

Inclusion criteria

The ABCD- study cohort consists of 12-13 year old children whose mothers have been participating in the ABCD-study since the start of antenatal care during pregnancy. For the present study a subsample will be selected consisting of:
• Children whose mothers scored in the 90st percentile of the State trait Anxiety Inventory during pregnancy (n=30)
• Children whose mothers were in the 90st percentile of BMI before pregnancy (n=30)
• Children who scored above the clinical cut-off score on the Children*s Revised Impact of Event Scale (CRIES) at the age of 11-12 years (n=30).
• A control group of children who do not fulfil the above criteria (n=30).

Exclusion criteria

Children born to mothers who did not participate in the ABCD-study during phase 1. Additionally, of the children born to mothers who did participate in the ABCD-study, all multiples and those whose parents did not give informed consent for the health check will be excluded. Additionally those children who do not give consent will be excluded.

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):	10-03-2018
Enrollment:	120
Type:	Actual

Ethics review

Approved WMO

Date:	21-07-2017
Application type:	First submission
Review commission:	METC Amsterdam UMC

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	NL61777.018.17