The long-term effects of bariatric surgery on metabolism, behavior and striatal dopamine receptors

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Determining the effect of long-term weight loss after bariatric surgery on:- striatal dopamine D2/3 receptor availability - behavioral parameters- plasma hormones, metabolites and peptides involved in appetite regulation, and glucose metabolism

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

Summary

ID

NL-OMON39639

Source ToetsingOnline

Brief title Long-term effects of bariatric surgery

Condition

• Other condition

Synonym metabolic syndrome

Health condition

obesitas

Research involving

Human

Sponsors and support

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

Intervention

Keyword: bariatric surgery, dopamine receptors, obesity

Outcome measures

Primary outcome

- striatal dopamine D2/3 receptor availability

Secondary outcome

- plasma levels of several hormones, metabolites and peptides involved in

appetite regulation and glucose metabolism

- behavioral parameters (measured via questionnaires and computer tasks)

Study description

Background summary

Obesity induces a series of metabolic alterations and increase the risk for cardiovascular diseases. Bariatric surgery is the most effective way to induce sustained weight loss and reversal of the obesity-induced changes in lipid and glucose metabolism. Insight into the mechanisms underlying these highly desirable effects is crucial in the development of future treatment modalities for metabolic syndrome that do not involve the risks associated with surgery. For this reason, we recently performed a study called ' The pleiotropic metabolic effects of bariatric surgery' in which we studied the short-term effects of bariatric surgery on amongst others striatal dopamine D2/3 receptor availability, behavioral parameters and hormones involved in metabolism. After completion of this study (6 weeks after surgery) subjects had lost significant amounts of weight, but they were still obese and body weight had not stabilized yet. Striatal D2/3 receptor availability did not change despite this significant change in weight. At present, more than a year has passed since the surgery and body weight has stabilized during this time. In the present follow-up study we want to determine the long-term effects of bariatric surgery in these patients. Gaining insight into the association between obesity and

reduced striatal D2/3 receptor availability in these patients will provide valuable insight into the development of obesity and the metabolic syndrome. In addition, studying the long-term effects of bariatric surgery on (eating)behavior and hormones known to be involved in the regulation of appetite and glucose metabolism will aid the development of future treatment modalities for obesity and the metabolic syndrome.

Study objective

Determining the effect of long-term weight loss after bariatric surgery on:

- striatal dopamine D2/3 receptor availability
- behavioral parameters

- plasma hormones, metabolites and peptides involved in appetite regulation, and glucose metabolism

Study design

Subjects that took part in our previous study examining the short-term effects of bariatric surgery will visit the AMC once after an overnight fast. On this day the following procedures will be performed (total duration approximately 5 hrs):

- Measurement of B-HCG in urine to exclude pregnancy
- Determination of body weight and -composition, BMI and resting energy expenditure
- Fasting blood sample
- Brain imaging: [123I]IBZM SPECT imaging.

- A questionnaire and a computer task will be assessed during the waiting time required for the SPECT imaging.

Study burden and risks

The radiation committee considers the risk to exposure during the SPECT scans as intermediate.

Contacts

Public Academisch Medisch Centrum

Meibergdreef 9 Amsterdam 1105 AZ NL **Scientific** Academisch Medisch Centrum

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

pre-menopausal Caucasian women that took part in our previous study "The pleiotropic effects of bariatric surgery"

Exclusion criteria

- use of medication that interferes with dopamine metabolism
- claustrophobia
- pregnancy
- tobacco use (i.e. smokers)
- unwilling or unable to provide informed consent

Study design

Design

Study type:Observational invasiveMasking:Open (masking not used)Control:Uncontrolled

Primary purpose:

Basic science

Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	19-04-2013
Enrollment:	19
Type:	Actual

Ethics review

Approved WMO Date:	17-01-2013
Application type:	First submission
Review commission:	METC Amsterdam UMC
Approved WMO Date:	14-05-2013
Application type:	Amendment
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 CCMO **ID** NL42500.018.12