Genetics of childhood obesity

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Ethical review	Approved WMO
Status	Pending
Health condition type	Appetite and general nutritional disorders
Study type	Observational invasive

Summary

ID

NL-OMON30344

Source
ToetsingOnline

Brief title
Genetics of childhood obesity

Condition

- Appetite and general nutritional disorders

Synonym
adiposity; overweight

Research involving
Human

Sponsors and support

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

Intervention

Keyword: food addiction, genetics, mc4r, obesity

Outcome measures

Primary outcome

frequencies of various polymorphisms and mutations in genes involved in the

regulation of motivational behaviour and satiety such as the melanocortin 4

receptor, dopamine D2 receptor, leptin, and pro-opiomelanocortin

Secondary outcome

not applicable

Study description

Background summary

The current prevalence of childhood overweight and obesity is alarmingly high. Childhood obesity is associated with considerable health risks and it resists most currently available treatments. There is a substantial genetic contribution to obesity. Understanding the genetics of obesity will ultimately lead to improved treatment and prevention strategies. Large studies are required to elucidate the genetic pathways and gene-environment interactions involved in obesity. We propose that variation in genes involved in the regulation of motivational behaviour and satiety plays a major role in the development of obesity. We aim to identify these genes using family-based association and linkage analysis in a large cohort of obese children and adolescents. Although common obesity is a polygenic trait, obesity displays a monogenic pattern of inheritance in some families. The most common monogenic form of obesity is caused by mutations in MC4R. Therefore we plan to perform mutation analysis of the gene encoding the melanocortin 4 receptor (MC4R) in this cohort. Several aspects of the role of MC4R mutations in obesity remain unclear. Our cohort is uniquely suited to study these aspects.

Study objective

We propose that variation in genes involved in the regulation of motivational behaviour and satiety plays a major role in the development of obesity. We aim to identify these genes using family-based association and linkage analysis in a large cohort of obese children and adolescents.

In addition, we plan to perform mutation analysis of the gene encoding the

melanocortin 4 receptor (MC4R) in our cohort with the aim to study the role of MC4R mutations in obesity.

Study design

We have established a centre for childhood and adolescent obesity. In this centre, we routinely collect a variety of data for diagnostic and treatment purposes. These data include anthropometric measures, oral glucose tolerance tests, endocrinological measures, and information about dietary intake, physical activity, socio-economic status, and ethnicity. We aim to collect DNA samples of the patients of our centre and their parents. All samples will be screened for MC4R mutations. We will study the phenotypic characteristics of patients with MC4R mutations. If we do not find defects in MC4R in the DNA sample of a patient, the sample will be stored in our DNA bank for future candidate gene studies and family based association or linkage studies.

Study burden and risks

We propose to ask patients and their parents for consent to withdraw blood samples for our genetic studies. Sampling of the children and adolescents will be performed simultaneously with blood withdrawal for diagnostic purposes. Consequently, there is no extra burden for patients. Parents of the patients will undergo venipuncture once. In the future, this study should lead to improved treatment methods.

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)
Children (2-11 years)
Elderly (65 years and older)

Inclusion criteria

overweight or obesity; age younger than 19

Exclusion criteria

none

Study design

Design

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

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-01-2007

Enrollment:	3000
Type:	Anticipated

Ethics review

Approved WMO 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	NL14841.029.06