Betacell and endothelial function in subjects with EXT-1 or EXT-2 mutations

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Assessment of glucose homeostasis and endothelial function and glycocalyx status in 30 subjects with heterozygous mutations in EXT1 or EXT2 and 30 unaffected related controls.

Ethical review	Approved WMO
Status	Pending
Health condition type	Endocrine disorders congenital
Study type	Observational invasive

Summary

ID

NL-OMON32811

Source
ToetsingOnline

Brief title
BEEM

Condition

- Endocrine disorders congenital

Synonym
cardiovascular disease, glucose intolerance

Research involving
Human

Sponsors and support

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

Intervention

Keyword: betacell, diabetes, endothelium, glycocalyx

Outcome measures

Primary outcome

Glycocalyx dimension through SDF imaging

Secondary outcome

Plasma glucose/ insulin levels

Endothelial function

Glycocalyx degradation products

Urinary albumin secretion

Study description

Background summary

A recent Genome Wide Association Study (GWAS) identified novel risk loci for type 2 diabetes including EXT-2. This gene codes for exostosin, which is involved in the elongation of heparan sulphate, a glycosaminoglycan present throughout the human body. Patients with EXT-1 and EXT-2 mutations are charactized by the HMO (hereditary multiple osteochondroma) syndrome, having multipe benign epiphysial bone tumors during pre-puberty due to 50% reduction in heparansulfate synthesis. However, mice with these mutations are characterized by smaller glycocalyx and fasting hyperglycemia. We are therefore interered whether human subjects with these mutations are also characterized by impaired fasting glucose tolerance, which could shed new light on the causes of type 2 diabetes mellitus.

Study objective

Assessment of glucose homeostasis and endothelial function and glycocalyx status in 30 subjects with heterozygous mutations in EXT1 or EXT2 and 30 unaffected related controls.

Study design

Case control study.

Study burden and risks

Glucose tolerance test is a non-invasive intervention and additional blood sampling. This observational study will help us the role of heparansulfates in glycocalyx in development of type 2 diabetes mellitus.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

>18 years of age
Genotype shows EXT-1 or EXT-2 mutation

Exclusion criteria

malignancy with decreased life expectancy
diabetes

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):	01-10-2008
Enrollment:	30
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	NL24872.018.08