The physiological role of bile acid*mediated glucagon*like peptide*1 release in humans: the Cerebrotendinous Xanthomatosis Mixed Meal Test study

Published: 01-02-2012
Last updated: 27-04-2024

The primary aim of the present protocol is to determine the role of chenodeoxycholate for postprandial GLP-1 responses (and the resulting metabolic consequences) in humans.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Metabolic and nutritional disorders congenital
Study type	Observational invasive

Summary

ID

NL-OMON36008

Source
ToetsingOnline

Brief title
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Condition

- Metabolic and nutritional disorders congenital
- Glucose metabolism disorders (incl diabetes mellitus)

Synonym
bile acid synthesis defect

Research involving
Human

Sponsors and support

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

Intervention

Keyword: bile acids, glucose, incretins, metabolism

Outcome measures

Primary outcome

Plasma bile acids, GLP-1, glucose

Secondary outcome

free fatty acidsn,thyroid hormones, resting energy expenditure

Study description

Background summary

Bile acids (BAs) have traditionally been regarded as nutrient-emulgators but may play an important role in energy metabolism. Primary bile acids are secreted in the bile and are dehydroxylated by the bacterial flora in the colon to form the secondary bile acids. BAs may stimulate the production of glucagon-like peptide-1 (GLP-1) that stimulates insulin secretion and inhibits glucagon secretion in the pancreas in a glucose-dependent fashion. Additionally, it reduces gastrointestinal motility and appetite. Cerebrotendinous xanthomatosis (CTX, OMIM #213700) is an autosomal recessive disorder characterized by a deficiency of sterol 27-hydroxylase leading to a defective BA synthesis (decreased amount of the BA chenodeoxycholate (CDCA)). It is not known whether CTX patients exhibit physiological deficiencies with regard to postprandial plasma GLP-1 responses, glucose uptake, free fatty acid (FFA) suppression and plasma insulin levels. Studying postprandial glucose metabolism in these patients will provide insight in the metabolic role of BAs. We hypothesize that CTX patients, when untreated, have lower postprandial GLP-1 and insulin levels with higher plasma glucose and FFA levels compared to matched healthy control subjects.

Study objective

The primary aim of the present protocol is to determine the role of

chenodeoxycholate for postprandial GLP-1 responses (and the resulting metabolic consequences) in humans.

Study design

Compare the metabolic response to a mixed meal test between 14 CTX patients and 14 healthy matched controls.

Study burden and risks

Peripheral (underarm) i.v. cannula, 5 hours stay in AMC

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

*Adult age (older than 18 years of age)
*Body mass index 19*30 kg/m2
*General good health (normal liver and renal function)
*HbA1c below 7%
*Ability to give informed consent

Exclusion criteria

Since CTX is a rare disorder, little exclusion criteria exist. However, patients that use medication that interferes with glucose metabolism such as oral antidiabetic medication or insulin are not included.

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	03-05-2013
Enrollment:	28
Type:	Actual

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	NL35575.018.11