Morfologie en functie van de hypothalamus na glucose inname door proefpersonen voor en na het gebruik van een hoogcalorisch dieet gedurende vijf dagen.

Gepubliceerd: 27-03-2009 Laatst bijgewerkt: 13-12-2022

Overfeeding disrupts the hypothalamic response to glucose ingestion in healthy men.

Ethische beoordeling	Positief advies
Status	Werving gestart
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON21031

Bron
NTR

Verkorte titel
N/A

Aandoening

diabetes type 2
suikerziekte
ouderdomssuikerziekte
diabetes

Ondersteuning

Primaire sponsor: Prof. dr. H. Pijl, internist-endocrinoloog
Overige ondersteuning: CMSB

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

1. FMRI scans of hypothalamus;
2. Polysomnography/MSLT.

Toelichting onderzoek

Achtergrond van het onderzoek

It has long been recognized that the hypothalamus plays a crucial role in metabolism. It is thought that the hypothalamus and brain stem get input from the periphery about the available food sources and that, thereafter, efferent neuroendocrine systems come in action to regulate food intake.

Several groups have focused on the effect of glucose ingestion on blood oxygen level-dependent (BOLD) signals in the hypothalamus (detected by MRI). Although there have been some contradicting papers, most studies found that the BOLD signal is diminished after the ingestion of glucose.

In 1999 Matsuda et al. looked at the effect of glucose ingestion in obese people on BOLD signals in the hypothalamus. The results were compared to healthy controls. It was found that the hypothalamic (paraventricular and ventromedial nuclei) BOLD signal decreases significantly in healthy people compared to obese people.

Similarly, in healthy individuals the BOLD signal diminishes after the ingestion of a glucose load. In diabetic patients however, the BOLD signal does not decline. This suggests that the hypothalamic response in these patients is altered – which could mean that metabolic and endocrine cues about the metabolic state are erroneously interpreted in diabetic patients.

Therefore, in this study we will evaluate the hypothesis that overfeeding disrupts the hypothalamic response to glucose ingestion in healthy men.

Doel van het onderzoek

Overfeeding disrupts the hypothalamic response to glucose ingestion in healthy men.

Onderzoeksopzet

28-02-2009 start of study.

Onderzoeksproduct en/of interventie

High caloric diet during 6 days.

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

1. Healthy males;

2. Healthy diet;

3. Age 19-29;

4. BMI 19-25 kg/m2;

5. Stable weight for the last 2 years;

6. Caucasian;

7. FPG < 6 mmol/L;

8. Hb > 7.5 mmol/l;

9. No family history of DM2.

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

1. Use of medication known to affect glucose metabolism (for example prednisone) or lipid metabolism;

2. History of genetic or psychiatric disease (e.g. fragile X syndrome, major depression) that affects the brain;

3. Significant chronic disease;

4. Renal or hepatic disease;

5. Recent weight changes or attempts to loose or gain weight (> 3 kg weight gain or loss, within the last 3 months);

6. Smoking (current);

7. Alcohol consumption of more than 28 units per week at present or in the past;

8. Recent blood donation (within the last 3 months);

9. Recent participation in other research projects (within the last 3 months);
10. Participation in 2 or more projects in one year;

11. Sleep disorders;

12. Contra-indication to MRI scanning:

A. Claustrophobia;

B. Pacemakers and defibrillators;

C. Nerve stimulators;

D. Intracranial clips;

E. Intraorbital or intraocular metallic fragments;

F. Cochlear implants;

E. Ferromagnetic implants.

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Cross-over
Toewijzing:	Gerandomiseerd
Blindering:	Open / niet geblindeerd
Controle:	Geneesmiddel

Deelname

Nederland

Status:	Werving gestart
(Verwachte) startdatum:	28-02-2009
Aantal proefpersonen:	10
Type:	Verwachte startdatum

Ethische beoordeling

Positief advies

Datum:	27-03-2009
Soort:	Eerste indiening

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL1642
NTR-old	NTR1740
Ander register	METC LUMC : P08.195
ISRCTN	ISRCTN wordt niet meer aangevraagd

Resultaten

Samenvatting resultaten
N/A