Brown Adipose Tissue Activity in Caucasians and South Asians

Published: 30-08-2011
Last updated: 04-05-2024

Main objective: 1) To investigate whether BAT activity differs between South Asians and Caucasians.Secondary objectives: 1) To investigate whether sympatic stimulation of BAT differs between South Asians and Caucasians2) To investigate the...

Ethical review	Approved WMO
Status	Pending
Health condition type	Glucose metabolism disorders (incl diabetes mellitus)
Study type	Observational invasive

Summary

ID

NL-OMON36373

Source
ToetsingOnline

Brief title
Brown adipose tissue and ethnicity

Condition

- Glucose metabolism disorders (incl diabetes mellitus)
- Glucose metabolism disorders (incl diabetes mellitus)

Synonym
Diabetes; metabolism

Research involving
Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum
Source(s) of monetary or material Support: eigen stichting

Intervention

Keyword: Brown Adipose Tissue, Ethnicity

Outcome measures

Primary outcome

Difference in Standardised Uptake Value (SUV) of the tracer

18F-fluorodeoxyglucose (FDG) visualised with PET-CT in BAT (Caucasians vs South

Asians)

Secondary outcome

-Difference in SUV of the tracer I-123 metaiodobenzylguanidine (MIBG) in BAT

(Caucasians vs South Asians)

-Correlation between SUV of the tracer MIBG and SUV of the tracer FDG (both in

the total group and Caucasians vs South Asians)

-Correlation between insulin sensitivity (as measured by euglycemic insulin

clamp) and SUV of the tracer FDG.

Study description

Background summary

It is well known that the prevalence and incidence of type 2 diabetes (DM) varies between ethnic groups. People of South Asian origin in particular have an increased risk of DM, which is about four times that of people of European origin. Moreover, The exact explanation for this increased risk is still unclear. We hypothesize that a still unidentified factor significantly contributing to the metabolic disbalance in South Asians might be a lower brown adipose tissue (BAT) activity.
BAT has only recently identified as a possible mean to significantly influence glucose metabolism. The knowledge of mechanism that influence BAT is still scare. To our knowledge, there have not been any studies published about BAT activity among different ethnic groups. The aim of this study is not only to investigate whether BAT activity differs between South Asians and Caucasians,

but to also reveal more about factors that can actually influence BAT activity

Study objective

Main objective:
1) To investigate whether BAT activity differs between South Asians and Caucasians.

Secondary objectives:
1) To investigate whether sympatic stimulation of BAT differs between South Asians and Caucasians
2) To investigate the correlation between sympatic stimulation of BAT with BAT activity itself in South Asians and Caucasians.
3) To investigate the relationship between insulin resistance and BAT activity in South Asians and Caucasians

Study design

Observational design with invasive measurements.

Study burden and risks

Included subjects will visit the AMC hospital on four occasions.
Visit 1: Informed consent, self-reported ethnicity, medical history, vital signs, explanation of study procedures, laboratory measurements. Total blood drawn: 22 ml.
Visit 2: Infusion of I-123 metaiodobenzylguanidine (MIBG) PET scan (scintigraphy)
Visit 3 (24 hours after visit 2): second MIBG PET scan (no new infusion of MIBG) and euglycemic clamp
Visit 4: 18F-fluorodeoxyglucose (FDG) PET-CT scan

During the entire study, a total of 122 ml will be drawn (22 ml during visit 1 and 100 ml during the euglycemic clamp).

The resulting dose from the low dose CT scan + the radioactive tracers is 9.0 mSv. There is no direct benefit for the volunteers. This study will provide new insights into ethnic differences in the pathofysiology of DM, which is needed for the efficient prevention and treatment of DM. In addition, this study will widen our knowledge about the mechanisms that influence BAT activity. BAT activity has only recently been identified as a possible mean to significantly influence glucose metabolism, and knowledge about factors influencing BAT activity is still scarce.

Contacts

Public
Academisch Medisch Centrum

Meibergdreef 9
1105 AZ Amsterdam
NL
Scientific
Academisch Medisch Centrum

Meibergdreef 9
1105 AZ Amsterdam
NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

Male
European or South Asian origin
Subjects should be able and willing to give informed consent
18-35 years old
BMI range of 20-25 kg/m2

Exclusion criteria

Renal failure (kreatinine>135mmol/l)
Use of prescription medication

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):	01-01-2011
Enrollment:	20
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	NL34861.018.10