Relation local skin temperature and perfusion

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Collecting temperature/perfusion data on a number of sites on the body during a warming/cooling cycle in order to obtain a relation that describes the connection between perfusion and temperature, depending on the measurement site. The obtained...

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON31284

Source
ToetsingOnline

Brief title
Relation local skin temperature and perfusion

Condition

- Other condition

Synonym
body temperature, perfusion

Health condition

Thermoregulatie systeem

Research involving
Human

Sponsors and support

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

Intervention

Keyword: Laser Doppler Flowmetry (LDF), Perfusion, Pletysmography, Temperature

Outcome measures

Primary outcome

Skin perfusion at 4 body sites

Fore arm blood flow

Skin temperature at 15 sites

Rectal temperature

Heart rate variability

Secondary outcome

Not applicable

Study description

Background summary

Perfusion is coherently related tot body temperature distribution. From literature, and from earlier obtained measurements, from patients who underwent an open heart surgery, it is concluded that there exists a strong relation between local temeprature and local skin perfusion. However, it is not clear if the relations that are used in literature are valid, because they are not based on fysiological measurements. Moreover, it is not clear if the temperature/perfusion relations found in literature also hold for people that are under anesthesia.
In this study, perfusion and temperature relations are studied in healthy volunteers. It will be investigated in what way the relations depend on the measurement loation. With the help of the obtained measurement data, the validity of the relations, found in literature, will be tested. Moreover, the temperature/perfusion relations will be compared to the relations found in

anesthetized patients during cardiac surgery. In this way the effect of anesthesia on the temeprature/perfusion relation can be studied.

Study objective

Collecting temperature/perfusion data on a number of sites on the body during a warming/cooling cycle in order to obtain a relation that describes the connection between perfusion and temperature, depending on the measurement site. The obtained measurement data will also be used for analyzing the temperature/perfusion relations, obtained in a previous study fom patients who underwent an open heart surgery.

Study design

The volunteers start the study by performing a light exercise on a bicycle ergometer, till vasodilation is reached (forearm-fingertip temperature gradient of 0 oC). Subsequently the subjects undergo a warming/cooling cycle. The cycle starts by entering a climate room, regulated at a temperature of 30oC. The room will be kept at this temperature during 90 minutes. Subsequently, the temperature of the climate room will be set to 20oC during 120 minutes. The volunteers stay in a reclining position during the whole period (90 minutes+120 minutes).
During the warming/cooling cycle, perfusion and temperature are recorded with the help of 4 Laser Doppler Flowmetry sensors, 1 pletysmography device and 15 temperature sensors. Core temperature will be recorded with the help of a rectal temperature sensor. Heart rate variability will be determined with the help of an ECG device.

Study burden and risks

All measurements can be undergone without any problem. No risks are involved in the experiments. The measurement methods are painless, and non-invasive.

Burden: a visit to Maastricht University during 4-4.5 hours (subjects will spend 90 minutes in a climate room with a temperature of 30oC, and subsequesntly 120 minutes in the climate room with the temperature set to 20oC). During the measurements, several non-invasive sensors will be used.

Contacts

Public
Universiteit Maastricht

Universiteitssingel 50

6200 MD Maastricht
Nederland
Scientific
Universiteit Maastricht

Universiteitssingel 50
6200 MD Maastricht
Nederland

Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

BMI<= 30
Gender: male
Age: 20-40

Exclusion criteria

BMI>30
Gender: female
Age<20 or >40
Diabetes Mellitus
Cardivascular diseases
Raynaud's syndrome

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	01-07-2007
Enrollment:	10
Type:	Actual

Medical products/devices used

Registration:	No

Ethics review

Approved WMO

Date:	14-06-2007
Application type:	First submission
Review commission:	METC academisch ziekenhuis Maastricht/Universiteit Maastricht, METC azM/UM (Maastricht)

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	NL17644.068.07