1) Target temperature management 33°C versus 36°C after out-of-hospital cardiac arrest, a randomised, parallel groups, assessor blinded clinical trial
2) Target Temperature Management After Cardiac Arrest

Published: 22-12-2010
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Primary objective: To evaluate whether there is a difference in all-cause mortality at 180 days or longer with a target temperature management at 33°C compared to a target temperature of 36°C, in patients unconscious after out-of-hospital OHCA....

Ethical review	Approved WMO
Status	Pending
Health condition type	Cardiac arrhythmias
Study type	Interventional

Summary

ID

NL-OMON34230

Source
ToetsingOnline

Brief title
TTM-Trial

Condition

- Cardiac arrhythmias
- Encephalopathies

Synonym

coma after cardiac arrest, post anoxic coma

Research involving
Human

Sponsors and support

Primary sponsor: Dept of Anaesthesia and Intensive Care, Helsingborg Hospital
Source(s) of monetary or material Support: Zweedse Hartstichting en andere Zweedse collectebus fondsen

Intervention

Keyword: cardiac arrest, hypothermia, neuroprotection

Outcome measures

Primary outcome

Primary outcome: All-cause mortality at maximal follow up (at least 180 days).

Secondary outcome

Secondary outcomes: Composite outcome of all-cause mortality and poor neurological function (Cerebral Performance Category 3 and 4) at hospital discharge and at 180 days. All-cause mortality and cerebral performance category at hospital discharge and at 180-days. Best neurological outcome during trial period. Cognitive status at 180 days. Neuron specific enolase at 48 and 72 hours. Bleeding, pneumonia, sepsis, electrolyte disorders, hyperglycaemia, hypoglycaemia, cardiac arrhythmia, renal replacement therapy.

Study description

Background summary

Experimental studies and previous clinical trials suggest an improvement in mortality and neurological function with hypothermia after cardiac arrest but the present data is inconclusive and the optimal temperature is not known.

Study objective

Primary objective: To evaluate whether there is a difference in all-cause mortality at 180 days or longer with a target temperature management at 33°C compared to a target temperature of 36°C, in patients unconscious after out-of-hospital OHCA.
Secondary objective: To evaluate whether there is a difference in the composite outcome of all-cause mortality and poor neurological function at hospital discharge and at 180 days with a target temperature management at 33°C compared to a target temperature of 36°C, in patients unconscious after out-of-hospital OHCA. To assess safety with target temperature management with regard to infection, cardiac arrhythmia, electrolyte disorders and bleeding.

Study design

Design: Multicentre, international, randomised trial with 1:1 concealed allocation of 850 out-of-hospital cardiac arrest patients to temperature control for 24 h at 33°C versus 36°C with blinded outcome assessment.

Intervention

Patients will be managed with 24 hours temperature control at 33°C versus 36°C according to randomisation. Temperature control will be delivered with temperature management equipment at the discretion of the trial sites. To facilitate cooling, when applicable, and to stabilise the circulation all patients will be treated with 30 ml/kg of crystalloid infusion (4°C or room temperature according to treatment arm).

Study burden and risks

Standard therapy for patients in coma after cardiopulmonary resuscitation is 24hours hypothermia (33C), but the most effective target temperature is at the moment uncertain. Known adverse effects of hypothermia treatment are with infection, coagulopathy, electrolyte disorders and arrhythmia. To enable treatment with hypothermia the patient has to be sedated thoroughly, which also has risks. The burden and risk of patients in this study is comparable to the burden of the standard treatment with hypothermia. Additional test needed for this study are serum sampling (2) for neuron specific enolase levels and a return visit to the hospital for follow-up tests.

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

1) Age *18 years,
2) Out of hospital cardiac arrest of presumed cardiac cause,
3) Sustained return of spontaneous circulation (ROSC),
4) Unconsciousness (GCS <8) (patients not able to obey verbal commands) after sustained ROSC.

Exclusion criteria

1. Conscious patients (obeying verbal commands)
2. Pregnancy
3. In-hospital cardiac arrest (IHCA)
4. OHCA of presumed non-cardiac cause, e.g. after trauma or dissection/rupture of major artery OR Cardiac arrest caused by initial hypoxia (i.e. drowning, suffocation, hanging).
5. Known bleeding diathesis (medically induced coagulopathy (e.g. warfarin, clopidogrel) does not exclude the patient).
6. Suspected or confirmed acute intracranial bleeding
7. Suspected or confirmed acute stroke

8. Unwitnessed asystole
9. Known limitations in therapy and Do Not Resuscitate-order
10. Known disease making 180 days survival unlikely
11. Known pre-arrest CPC 3 or 4
12. >4 hours (240 minutes) from ROSC to screening
13. Systolic blood pressure <80 mm Hg in spite of fluid loading/vasopressor and/or inotropic medication/intra aortic balloon pump

Study design

Design

Study type:	Interventional
Intervention model:	Parallel
Allocation:	Randomized controlled trial
Masking:	Double blinded (masking used)
Control:	Active
Primary purpose:	Treatment

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-09-2010
Enrollment:	150
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
ClinicalTrials.gov	NCT01020916
CCMO	NL32044.018.10