

Non-invasive CPAP-Ventilation versus Oxygen-therapy using a simple face mask for Carbon Monoxide poisoning

Submission date	Recruitment status	<input checked="" type="checkbox"/> Prospectively registered
12/06/2014	No longer recruiting	<input type="checkbox"/> Protocol
Registration date	Overall study status	<input type="checkbox"/> Statistical analysis plan
20/06/2014	Completed	<input type="checkbox"/> Results
Last Edited	Condition category	<input type="checkbox"/> Individual participant data
02/09/2020	Injury, Occupational Diseases, Poisoning	<input type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims:

Carbon monoxide (CO) is a leading cause of poisoning. There are 40,000 to 50,000 reported cases in the United States per year. It is assumed, however, that many more cases go unreported as it is difficult to diagnose. This is due to the nonspecific symptoms (for example, nausea, feeling tired and confused, vomiting, stomach pains and difficulty breathing) than can be similar to food poisoning or flu. CO poisoning not only leads to a number of acute symptoms but also to chronic complaints weeks or even months after the actual poisoning has taken place, the so called "neuropsychiatric sequelae". These symptoms can include headaches, nausea, lethargy, confusion, emotional lability, amnesia, and even psychosis. Current standard treatment of CO poisoning consists of inhaling oxygen via a simple face mask. The aim of this study is to test whether supporting the patients own breathing using a tight face mask and a ventilation machine (respirator) reduces the occurrence of those "neuropsychiatric sequelae".

Who can participate?

Patients treated for acute CO poisoning can be included in the study if the level of CO measured in their blood ("COHb") was at least 7% and they are at least 18 years old, not pregnant and that there was no need to insert a special tube to facilitate ventilation into their trachea ("intubation")

What does this study involve?

Patients are randomly assigned to either standard therapy (oxygen inhalation via a simple face mask) or study therapy (tight face mask and ventilation machine). During therapy CO-levels are continuously measured. Therapy will be stopped when CO-levels reach 3% or below. After completion of the therapy, a neuropsychiatric test will be performed. Patients will be contacted one month later to perform the test again, and will be asked about their quality of life.

What are the possible benefits and risks of participating?

All participants receive close monitoring and follow-up of their symptoms and quality of life. If the study hypothesis proves to be true, patients in the intervention group (those that were treated with study therapy) receive a better treatment with the potential to reduce later

complaints.

There are no anticipated risks from participation, however the face mask may feel uncomfortable for some patients.

Where is the study run from?

The study is run by the Department of Emergency Medicine of the Medical University of Vienna (Austria)

When is the study starting and how long is it expected to run for?

June 2014 to July 2015

Who is funding the study?

Austrian Association of Emergency and Disaster Medicine (Austria)

Who is the main contact?

Dr. Dominik Roth

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Contact information

Type(s)

Scientific

Contact name

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Additional identifiers

Protocol serial number

N/A

Study information

Scientific Title

Non-invasive CPAP-ventilation versus oxygen-therapy using a simple face mask for carbon monoxide poisoning: A single-center, randomised assessor-blinded controlled parallel-group study

Acronym

CO-CPAP

Study objectives

Non-invasive CPAP ventilation using a tight face mask reduces the incidence of neuropsychological sequelae 1 month after carbon monoxide intoxication compared to standard oxygen inhalation using a simple face mask with oxygen reservoir.

Ethics approval required

Old ethics approval format

Ethics approval(s)

Medical University of Vienna Ethics Committee, 19/05/2011, ref. 251/2011

Study design

Single-center, randomised assessor-blinded controlled parallel-group study

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Carbon monoxide poisoning

Interventions

Intervention: Non-invasive CPAP ventilation using a tight mask and standard respirator equipment

Control: Oxygen inhalation therapy by a simple facemask with oxygen reservoir

Intervention Type

Other

Phase

Not Applicable

Primary outcome(s)

Absence of neuropsychological sequelae 1 month after intoxication

Key secondary outcome(s)

1. Time until COHb-level reaches 3% or less
2. Changes in neuropsychological sequelae between hospital discharge and 1 month after intoxication
3. Quality of life after 1 month
4. Mortality after 1 month
5. Adverse events
6. Length of Stay at ICU
7. Length of stay in hospital
8. Hospital admission within 1 month

Completion date

31/07/2015

Eligibility

Key inclusion criteria

1. Adult patients (i.e. at least 18 years old) treated at the Emergency Department
2. Elevated levels of COHb (COHb >= 7%) AND either assured CO-exposition (for example, faulty gas-heater, fire) or symptoms consistent with CO poisoning

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 years

Sex

All

Key exclusion criteria

1. Patients being comatose on admission
2. Patients intubated by Emergency Medical Service
3. Patients requiring mechanical ventilation
4. Pregnant women

Date of first enrolment

25/06/2014

Date of final enrolment

31/07/2015

Locations

Countries of recruitment

Austria

Study participating centre

Department of Emergency Medicine

Vienna

Austria

1090

Sponsor information

Organisation

Medical University of Vienna

ROR

<https://ror.org/05n3x4p02>

Funder(s)

Funder type

Research organisation

Funder Name

Austrian Association of Emergency and Disaster Medicine: Reinhard Malzer scientific fund (Austria)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes