

Clinical Trial Protocol

Iranian Registry of Clinical Trials

28 May 2026

The Effect of Heparin Concentration of 1000 units per ml in Blood Samples on the Results of Venous Blood Gases intensive care unit patients

Protocol summary

Study aim

Determining the effect of heparin concentration of 1000 units per ml in blood sample on venous blood gas results of patients admitted to intensive care unit

Design

clinical trial with control group, with parallel groups, one-way blind, on 282 samples by non-random sampling method and available

Settings and conduct

Intravenous blood samples are taken from 282 (n = 141 intervention group and n = 141 control groups) patients admitted to the intensive care unit of 22 Bahman Hospital in Neishabour. Syringes are placed in two groups of heparin 1000 units and heparin 5000 units. An equal number of insulin syringes will be heparinized by the researcher in one group (A) with 1000 units of heparin solution (0.5 cc) and the other group (B) with 5000 units of heparin with the same amount (0.5 cc) of heparin. (50 units per syringe) will be divided into two insulin syringes heparinized with codes A (heparin 1000 units) and B (heparin 5000 units) that only the researcher knows the nature of. Not given to the analyzer and the answers are compared with each other.

Participants/Inclusion and exclusion criteria

Satisfaction to participate in the study Patients admitted to the cardiac intensive care unit Age 60-18 years Hemoglobin level more than 10 mg per deciliter There coagulopathy or anticoagulant treatment of moderate to high dose Death or discharge from the ward

Intervention groups

An equal number of insulin syringes were heparinized in one group (intervention group) with 1000 units of heparin solution at a rate of 0.1 cc. In the control group, based on the current situation, an injection of 5000 units of heparin in the amount of 0.1 ml will be used to impregnate the insulin syringes used for blood sampling to perform venous blood gas tests.

Main outcome variables

Sodium, kalium, Calcium, PVO₂, PVC0₂, HCO₃, buffer Base, Base Exese, PH

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200929048885N1**

Registration date: **2020-10-19, 1399/07/28**

Registration timing: **registered_while_recruiting**

Last update: **2020-10-19, 1399/07/28**

Update count: **0**

Registration date

2020-10-19, 1399/07/28

Registrant information

Name

Rasool Lakziyan

Name of organization / entity

Rajaie Cardiovascular Medical and Research Center

Country

Iran (Islamic Republic of)

Phone

+98 51 4262 3781

Email address

taha1992rajaei@rhc.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-10-11, 1399/07/20

Expected recruitment end date

2020-11-30, 1399/09/10

Actual recruitment start date

empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
The Effect of Heparin Concentration of 1000 units per ml in Blood Samples on the Results of Venous Blood Gases intensive care unit patients

Public title
The Effect of Heparin Concentration of 1000 units per ml in Blood Samples on the Results of Venous Blood Gases intensive care unit patients

Purpose
Treatment

Inclusion/Exclusion criteria
Inclusion criteria:
Satisfaction to participate in the study Patients admitted to the cardiac intensive care unit Age 60-18 years Hemoglobin level more than 10 mg per deciliter
Exclusion criteria:
There coagulopathy or anticoagulant treatment of moderate to high dose Death or discharge from the ward

Age
From **18 years** old to **60 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size
Target sample size: **141**
More than 1 sample in each individual
Number of samples in each individual: **2**
Syringes will be placed in two groups of heparin 1000 units (heparinized syringes with 1000 units) and heparin 5000 units (the common method of heparinized syringes with heparin is 5000 units). An equal number of insulin syringes will be heparinized by the researcher in one group (A) with 1000 units of heparin solution at the rate of 0.05 cc and the other group (B) with 5000 units of heparin with the same amount (0.05 cc). The blood sample was taken by the researcher at the rate of 1 cc from the peripheral venous line of each patient and the same blood prepared from one person in equal amounts (50 units or half a cc) in both syringes (B, A) that were already heparinized , Is distributed.

Randomization (investigator's opinion)
Not randomized

Randomization description

Blinding (investigator's opinion)
Double blinded

Blinding description
First, all participants will be explained how to implement the project. The syringes will then be placed in two groups of heparin 1000 units (heparinized syringes with 1000 units) and heparin 5000 units (the common method

of heparinized syringes with heparin is 5000 units). An equal number of insulin syringes will be heparinized by the researcher in one group (A) with 1000 units of heparin solution (0.05 cc) and the other group (B) with 5000 units of heparin with the same amount (0.05 cc). They will be divided equally by the researcher (0.5 cc or 50 units per syringe) into two insulin syringes heparinized with codes A (heparin 1000 units) and B (heparin 5000 units) that only the researcher knew about. It is then placed on ice and sent to the laboratory within 10 minutes, along with a test sheet that lists the necessary parameters (patient biography, body temperature, hemoglobin level, oxygen intake). A laboratory that does not know the amount of heparin in the syringes is given to the analyzer.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Shaheed Rajaie Cardiovascular Medical and Research Center

Street address

Tehran - Vali Asr St. (AS) - next to Mellat Park - corner of Niayesh Educational, Research and Treatment Center

City

tehran

Province

Tehran

Postal code

1995614331

Approval date

2020-09-16, 1399/06/26

Ethics committee reference number

IR.RHC.REC.1399.064

Health conditions studied

1

Description of health condition studied

heparin soduim

ICD-10 code

T45.9

ICD-10 code description

Primarily systemic and haematological agent, unspecified

Primary outcomes

1

Description

Pvo2

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

2

Description

Pvco2

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

3

Description

Hco3

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

4

Description

Buffer Base

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

5

Description

Base Exese

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

6

Description

PH

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

Secondary outcomes

1

Description

Sodium

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

2

Description

Kalium

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

3

Description

Calcium

Timepoint

Immediately after venous blood sampling

Method of measurement

Laboratory, venous blood gas meter

Intervention groups

1

Description

Intervention group: Dilute an equal number of insulin syringes in a group (intervention group) with 1000 units of heparin solution (to prepare 1000 units of heparin, dilute one ampoule of 5000 units of heparin with 4 cc of distilled water in a 5 cc syringe and its volume To 5 cc, each cc equal to 1000 units), heparinized to 0.1 cc.

Category

Treatment - Drugs

2

Description

Control group: In the control group, based on the current situation, an ampoule of 5000 units of 0.1 ml of heparin was used to impregnate the insulin syringes used for blood sampling to test venous blood gases.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

22 bahman hospital neyshabour

Full name of responsible person

rasool lakziyan

Street address

Noor .ST

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Razavi Khorasan

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Email

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Shaheed Rajaie Cardiovascular, Medical & Research Center

Full name of responsible person

fidan shabani

Street address

Tehran - Vali Asr St. - Next to Mellat Park - the beginning of Niayesh Highway

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Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Shaheed Rajaie Cardiovascular, Medical & Research Center

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Shaheed Rajaie Cardiovascular, Medical & Research Center

Full name of responsible person

rasool lakziyan

Position

nurse

Latest degree

Bachelor

Other areas of specialty/work

Nursery

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Shaheed Rajaie Cardiovascular, Medical & Research Center

Full name of responsible person

rasool lakziyan

Position

nurse

Latest degree

Bachelor

Other areas of specialty/work

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Person responsible for updating data

Contact

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Sharing plan**Deidentified Individual Participant Data Set (IPD)**

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available