

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Comparison the effect of forced air warming and warmed intravenous fluid on comfort and prevention of shivering after spinal anesthesia in patient undergoing orthopedic surgery

Protocol summary

Study aim

Comparison the effect of forced air warming and warmed intravenous fluid on comfort and prevention of shivering after spinal anesthesia in patient undergoing orthopedic surgery

Design

A clinical trial with a control group, with parallel groups, single Blind, randomized

Settings and conduct

The present study will be performed in Kashan Naghavi Hospital operating room. Patients referred to the operating room of the lower extremity for orthopedic surgery will be randomly divided into three groups: hot air pressure (40 patients), warm venous serum (40 patients) and control group (40 patients). The first group will receive the serum at room temperature (21-23 ° C) and warm air at 38 ° C. For the second group, the warm serum will be infused at 37 ° C. The third group is the control group, which will be routinely monitored for serum and room temperature (21-23 ° C).

Participants/Inclusion and exclusion criteria

Patients undergoing orthopedic surgery - age 18-60 years - under spinal anesthesia

Intervention groups

Group A (using of forced air warming 38° C) Group B (using warm intravenous serum at 37° C) Group C (The control group will be routinely monitored for serum and room temperature)

Main outcome variables

Reduce shivering during surgery, reduce drug side effects, earlier discharge, reduce anxiety, reduce hospital costs.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20191224045885N1**

Registration date: **2020-01-12, 1398/10/22**

Registration timing: **prospective**

Last update: **2020-01-12, 1398/10/22**

Update count: **0**

Registration date

2020-01-12, 1398/10/22

Registrant information

Name

Mehdi Moheb

Name of organization / entity

Country

Iran (Islamic Republic of)

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Email address

mehdi.moheb8445@mailfa.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-03-05, 1398/12/15

Expected recruitment end date

2020-06-04, 1399/03/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison the effect of forced air warming and warmed intravenous fluid on comfort and prevention of shivering

after spinal anesthesia in patient undergoing orthopedic surgery

Public title

The effect of forced air warming and warmed intravenous fluid on comfort and prevention of shivering

Purpose

Health service research

Inclusion/Exclusion criteria

Inclusion criteria:

Having orthopedic surgery in the lower limb and under spinal anesthesia Having the consent to participate in the study Patients who are in Class 1 and 2 according to the American Anesthesiological Association (ASA) Patients 18-60 years old No corticosteroid drugs and NSAIDs taken 24 hours before surgery

Exclusion criteria:

Blood injection and blood products during surgery Conversion of spinal anesthesia to general anesthesia during surgery due to insufficient surface area and severity of anesthesia The temperature of the tympanic membrane is less than 36.5 and greater than 37.5 ° C Increased spinal anesthesia Duration of surgery more than 3 hours

Age

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

Gender

Both

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: **120**

Randomization (investigator's opinion)

Randomized

Randomization description

Patients were randomly divided into 6 groups and divided into three groups.

Blinding (investigator's opinion)

Single blinded

Blinding description

In this study, all three groups of participants were kept blind. Patients will be told that the study is intended for your well-being so that they will experience comfortable environmental surgery.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Kashan University of Medical Sciences

Street address

15 Khordad Square, Municipality street

City

Kashan

Province

Isfahan

Postal code

8715973474

Approval date

2019-06-30, 1398/04/09

Ethics committee reference number

IR.Kaums.nuhepm.rec.1398.022

Health conditions studied

1

Description of health condition studied

Patients undergoing orthopedic surgery

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Patients' shivering based on quadratic scale: No shiver 0; Mild shiver: Mild contractions in facial and neck muscles (1); Moderate shiver: Apparent shivering in neck and shoulders and extremities (2); Severe shivering: Apparent shivering They will be evaluated throughout the body (3)

Timepoint

On arrival before spinal (0 minutes), 15 minutes after spinal, surgical completion time, recovery time, and 15 minutes after surgery

Method of measurement

Quadruple shivering Scale

Secondary outcomes

1

Description

Patients' comfort ratings will be scored based on a VAS observation score ranging from 0 to 10. (0 indicates patient satisfaction with temperature and temperature; and 10 indicates worst patient perception of temperature and temperature conditions)

Timepoint

On arrival before spinal (0 minutes), 15 minutes after spinal, surgical completion time, recovery time, and 15 minutes after surgery

Method of measurement

Visual Analogue Scale

Intervention groups

1

Description

Intervention group: The first group of serum recipients will be operated at room temperature (21-23 ° C) and hot air at 38 ° C (Warm Touch; Mallinckrodt Medical, St Louis, MO, USA).

Category

Prevention

2

Description

Intervention group: For the second group, 37 ° C warm serum kept in the heater prior to infusion (Fan Azma Gostar.CO, Iran; Thermometer Industrial Group) to reach 37 ° C during infusion.

Category

Prevention

3

Description

Control group: The third group is the control group that will be under routine care of serum and room temperature (21-23 ° C).

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Naghavi Hospital

Full name of responsible person

Firouzian Ali

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Rajai Street

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Kashan University of Medical Sciences

Full name of responsible person

Alireza Moravji

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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

Kashan University of Medical Sciences

Proportion provided by this source

80

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

Kashan University of Medical Sciences

Full name of responsible person

Moheb Mehdi

Position

Anesthesiologist

Latest degree

Bachelor

Other areas of specialty/work

Anesthesiology

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Person responsible for scientific inquiries

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Full name of responsible person

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Latest degree

Bachelor

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is 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

Yes - There is a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

Yes - There is a plan to make this available

Data Dictionary

Yes - There is a plan to make this available

Title and more details about the data/document

All potential data can be shared after unidentifiable people.

When the data will become available and for how long

Start access period 7 months after publishing results.

To whom data/document is available

The data will be available to researchers working in academic and scientific institutions

Under which criteria data/document could be used

Compliance with the rules is not a restriction on the use of data.

From where data/document is obtainable

Kashan University of Medical Sciences-Tel: 03155540021
Email: info@kaums.ac.ir

What processes are involved for a request to access data/document

Access period starting from September 1999 through Kashan University of Medical Sciences

Comments