

Clinical Trial Protocol

Iranian Registry of Clinical Trials

12 Jul 2026

The Effect of Low Dose and High Dose Magnesium Sulphate on Hemodynamic Changes during Sternotomy and Laryngoscopy in Patients Undergoing Coronary Artery Bypass Graft Surgery

Protocol summary

Summary

Objective: Hemodynamic stability during anesthesia and surgery is one of the basic goals that every anesthesiologist wishes to achieve. Laryngoscopy and sternotomy are two major stresses to human body that could alter heart rate and blood pressure significantly. The primary goal of this study was to evaluate the effect of low and high doses of magnesium sulfate on mean arterial pressure of patients undergoing CABG during laryngoscopy and sternotomy and compare it with the placebo. Design: Randomized placebo controlled. Methods: 90 patients were randomly allocated in to three groups. Intervention: Patients in group one received a 20mg/kg bolus dose of magnesium sulphate over a period of 3 minutes followed by an infusion of magnesium sulphate (10 mg/kg/hour). Patients in group two received a 40mg/kg bolus dose of magnesium sulphate over a period of 3 minutes followed by an infusion of magnesium sulphate (20 mg/kg/hour). Patients in group three received placebo. Exclusion Criteria: Patients with left ventricular ejection fraction less than 40%, left ventricular aneurysm, valvular heart disease, previously documented hypertension and diabetes mellitus were not enrolled in the study. Outcome measures: Heart rate and blood pressure were recorded on arrival and before intubation and 2 and 4 minutes after intubation and 1 minute before sternotomy and 2 and 4 minutes after sternotomy.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201209235140N7**
Registration date: **2014-11-23, 1393/09/02**
Registration timing: **prospective**

Last update:

Update count: **0**

Registration date

2014-11-23, 1393/09/02

Registrant information

Name

Omid Azimaraghi

Name of organization / entity

Tehran University of Medical Sciences

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Recruitment status

Recruitment complete

Funding source

Tehran University of Medical Sciences, Dr. Shariati Hospital

Expected recruitment start date

2014-12-01, 1393/09/10

Expected recruitment end date

2015-03-01, 1393/12/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of Low Dose and High Dose Magnesium Sulphate on Hemodynamic Changes during Sternotomy and Laryngoscopy in Patients Undergoing Coronary Artery Bypass Graft Surgery

Public title

The effect of Magnesium Sulphate on hemodynamics

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: Patients referred to our anesthesia clinic; Patients aged 40 to 80 years undergoing Coronary Artery Bypass Graft Surgery
Exclusion Criteria: Patients with left ventricular ejection fraction less than 40% ; left ventricular aneurysm; valvular heart disease; previously documented hypertension; diabetes mellitus

Age

From **40 years** old to **80 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **90**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee, Faculty of medicine of Tehran
University of Medical Sciences

Street address

Research deputy, Ethics Committee of Tehran
University of Medical Sciences, 6th floor, Tehran
University of Medical Sciences building, Ghods
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City

Tehran

Postal code

Approval date

2013-02-01, 1391/11/13

Ethics committee reference number

25612/2321

Health conditions studied

1

Description of health condition studied

Other and unspecified disorders of circulatory system

ICD-10 code

I99

ICD-10 code description

Other and unspecified disorders of circulatory system

Primary outcomes

1

Description

Heart rate during intubation

Timepoint

Before intubation and 2 and 4 minutes after intubation

Method of measurement

Using patients monitoring

2

Description

Heart rate during sternotomy

Timepoint

Before sternotomy and 2 and 4 minutes after

Method of measurement

Using patients monitoring

Secondary outcomes

1

Description

Blood pressure during intubation

Timepoint

Before intubation and 2 and 4 minutes after

Method of measurement

Using sphygmomanometer

2

Description

Blood pressure during sternotomy

Timepoint

Before sternotomy and 2 and 4 minutes after

Method of measurement

Using sphygmomanometer

Intervention groups

1

Description

Patients in group one received a 20mg/kg bolus dose of magnesium sulphate over a period of 3 minutes followed by an infusion of magnesium sulphate 10 mg/kg/hour

Category

Prevention

2

Description

Patients in group two received a 40mg/kg bolus dose of magnesium sulphate over a period of 3 minutes followed by an infusion of magnesium sulphate(20 mg/kg/hour).

Category

Treatment - Drugs

3

Description

Patients in group three received saline as placebo for bolus and infusion.

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Dr. Shariati Hospital

Full name of responsible person

Dr. Omid Azimaraghi

Street address

Dr Shariati Hospital, North Kargar Ave ,Amirabad

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor of research-Tehran University of Medical Sciences

Full name of responsible person

Dr. Shahin Akhoondzadeh

Street address

Vice Chancellor for research , Tehran University of Medical Sciences Tehran Tehran Iran, Islamic Republic Of

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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

Vice chancellor of research-Tehran University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Dr Shariati Hospital

Full name of responsible person

Dr. Omid Azimaraghi

Position

Chief Resident of Anesthesiology

Other areas of specialty/work

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Person responsible for scientific inquiries

Contact

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Dr. Ali Movafegh

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Professor of anesthesiology

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Person responsible for updating data

Contact

Name of organization / entity

Department of Anesthesiology, Dr Shariati Hospital

Full name of responsible person

Dr. Omid Azimaraghi

Position

Chief resident of Anesthesiology

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty