

Clinical Trial Protocol

Iranian Registry of Clinical Trials

21 Jun 2026

The effect of deep breathing exercises and incentive spirometry on artery blood gases after coronary artery bypass surgery in open heart surgery critical care unit at Isfahan, 2012

Protocol summary

Summary

Objective: effect of deep breathing exercises and incentive spirometry on artery blood gases after coronary artery bypass surgery in open heart surgery critical care unit at Isfahan, Iran in 2012. Study Design: randomized clinical trial. Study population: patients admitted to open heart surgery intensive care unit hospital selective at Isfahan. Inclusion criteria: willingness to participate in the study; non emergency open heart surgery; not having mental and neuro-muscular disorders; not having any sever pulmonary disease(COPD); not having renal dysfunction; mechanical ventilation for less than 24 hours after admission to the open heart ICU and the ability in using of the incentive spirometry machine. Exclusion criteria: patients with hemodynamic instability (dangerous dysrhythmia, cardiogenic shock, sever hypotension) after surgery; having neurological and mental disorders after operation; the need for re-intubation or re-operation and willingness to quit the study. Intervention: first group used incentive spirometry, twice; group did deep breathing exercises and the control group did usual exercise (unplanned exercises). Time of intervention: interventions were performed for third day postoperative. Blood artery gases parameter (Sao₂, Pao₂, Paco₂) were measured pre operative, after extubation, second and third days postoperative. The patient has arterial line after surgery until third postoperative for hemodynamic monitoring.

General information

Acronym

IS, DBE, CABG

IRCT registration information

IRCT registration number: **IRCT2013050913280N1**
Registration date: **2013-05-19, 1392/02/29**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2013-05-19, 1392/02/29

Registrant information

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Name of organization / entity

Isfahan University of Medical Sciences

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Recruitment status

Recruitment complete

Funding source

Vice chancellor for research, Isfahan University of Medical Sciences

Expected recruitment start date

2012-12-15, 1391/09/25

Expected recruitment end date

2013-02-18, 1391/11/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of deep breathing exercises and incentive spirometry on artery blood gases after coronary artery

bypass surgery in open heart surgery critical care unit at Isfahan, 2012

2012-12-12, 1391/09/22

Ethics committee reference number
391339

Public title

The effect of breathing exercises on pulmonary function improvement after coronary artery bypass surgery

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria: willingness to participate in the study; non emergency open heart surgery; not having mental and neuro-muscular disorders; not having any severe pulmonary disease(COPD); not having renal dysfunction; mechanical ventilation for less than 24 hours after admission to the open heart ICU and the ability in using of the incentive spirometry machine. Exclusion criteria: patients with hemodynamic instability (dangerous dysrhythmia, cardiogenic shock, severe hypotension) after surgery; having neurological and mental disorders after operation; the need for re-intubation or re-operation and willingness to quit the study.

Age

From **40 years** old to **90 years** old

Gender

Both

Phase

2

Groups that have been masked

No information

Sample size

Target sample size: **75**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Isfahan university of medical sciences

Street address

Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Azadi Square, Hezar-Jerib, Isfahan

City

Isfahan

Postal code

461-81746

Approval date

Health conditions studied

1

Description of health condition studied

Coronary artery bypass surgery

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Blood artery gases parameter

Timepoint

Preoperative, post extubation, second and third days postoperative

Method of measurement

Blood artery gases measurement machine

Secondary outcomes

empty

Intervention groups

1

Description

First group used incentive spirometry 10 per 2 hours.

Category

Prevention

2

Description

Intervention in second group consist of deep breathing exercises that are performed 10 per 2 hours.

Category

Prevention

3

Description

Control group only did usual exercises(unplanned exercises).

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

Chamran hospital - Sina hospital

Full name of responsible person

Hiva mohammadi bollbanabad
Street address
bozorgmehr avenue-Isfahan
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2

Recruitment center

Name of recruitment center
Sina hospital
Full name of responsible person
Hiva mohammadi bollbanabad
Street address
shams abadi avenue- Isfahan
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Isfahan University of Medical Sciences
Full name of responsible person
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Hezar-Jerib street, Isfahan.
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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
Isfahan 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

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Web page address**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