Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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

Name

Hiva Mohammadi Bollbanabad

Name of organization / entity

Isfahan University of Medical Sciences

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Iran (Islamic Republic of)

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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

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 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.
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
2012-12-12, 1391/09/22
Ethics committee reference number
391339

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
Preperative, post extubation, second and third days postoperative
Method of measurement
Blood artery gases measurment 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

City

Ishahan

2

Recruitment center

Name of recruitment center

Sina hospital

Full name of responsible person

Hiva mohammadi bollbanabad

Street address

shams abadi avenue- Isfahan

City

Ishahan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Isfahan University of Medical Sciences

Full name of responsible person

Dr Peiman Adibi

Street address

Isfahan University of Medical Sciences, Azadi Square, Hezar-Jerib street, Isfahan.

City

Isfahan

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

Name of organization / entity

Isfahan University of Medical Sciences

Full name of responsible person

Hiva Mohammadi Bollbanabad

Position

MSc student in critical care nursing

Other areas of specialty/work

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Person responsible for scientific inquiries

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PHD

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Position

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Other areas of specialty/work

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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