Clinical Trial Protocol
Iranian Registry of Clinical Trials

09 Nov 2026

The effect of expiratory rib – cage compression before endotracheal suctioning on arterial blood oxygenation mechanically ventilated patients

Protocol summary

Summary

Background & Aim: In patients undergoing mechanical ventilation because of an endotracheal tube, mucus production and secretion is high. Because endotracheal suction in these patients is essential, Chest physiotherapy techniques such as expiratory rib cage compression before endotracheal suctioning can be used as a means to facilitate mobilizing and removing airway secretion and improving alveolar ventilation. So that this study was carried out to determine the effect of expiratory rib cage compression before endotracheal suctioning on arterial blood oxygenation (spo2) in patients receiving mechanical ventilation. Material & Method: This study is a randomized clinical trial with crossover design. The study sample included 50 mechanically ventilated patients hospitalized in intensive care wards of hospitals valiasr and ayatollah mousavi in zanjan. Subjects were selected based on purposive sampling method. The patients received endotracheal suctioning with and without rib cage compression. With a minimum 3 hours interval between the two interventions. Expiratory rib cage compression was performed for 5 minutes before endotracheal suctioning. Spo2 were measured 5 minutes before and 15, 25 minutes after endotracheal suctioning. Data were recorded on the data recording sheet. Data were analyzed using paired t-tests.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201205079664N1**
Registration date: **2012-05-21, 1391/03/01**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2012-05-21, 1391/03/01

Registrant information

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Recruitment status

Recruitment complete

Funding source

Vice chancellor for research, Zanjan University of Medical Sciences

Expected recruitment start date
2011-04-21, 1390/02/01
Expected recruitment end date
2011-10-23, 1390/08/01
Actual recruitment start date
empty
Actual recruitment end date
empty
Trial completion date
empty

Scientific title

The effect of expiratory rib – cage compression before endotracheal suctioning on arterial blood oxygenation mechanically ventilated patients

Public title

The effect of expiratory rib – cage compression before endotracheal suctioning on arterial blood oxygenation
The effect of expiratory rib – cage compression before endotracheal suctioning on arterial blood oxygenation

mechanically ventilated patients

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: men patients with stable hemodynamic status within 18-70 years old, wiht Hct more than 25%, without hyperthermia, chest injury, chst tube, chest surgery and ventilated on PEEP mode, patient with active asthma and emphysema, using endotracheal suctioning 1 hours before intervention. Exclusion criteria: reciving any kind of parlytic mascular drug like Pavlon in invention time zone, start/stop or chnage in vasodilator drug in invention time zone, change in ventilator setup, using endotracheal suctioning 1 hours before each phase of intervention, changing ventilator mode as with CMV mode.

Age

From **18 years** old to **70 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **50**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Single blinded

Blinding description

Placebo

Not used

Assignment

Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Zanjan University of Medical Sciences and Health Services

Street address

Azadi Square,Zanjan University of Medical Sciences and Health Services

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Zanjan

Postal code

45156-13191

Approval date

2011-03-13, 1389/12/22

Ethics committee reference number

8912218

Health conditions studied

1

Description of health condition studied

patients under mechanical ventilation

ICD-10 code

J00-J99

ICD-10 code description

Primary outcomes

1

Description

Arterial blood oxygenation

Timepoint

5 minutes befor and 15 and 25 minutes after intervention in each phase

Method of measurement

using vital sign monitoring system with Poyandegan Rahe Saadat made in Iran

Secondary outcomes

1

Description

Vital sign including Blood pressure, pulse, respiratory rate

Timepoint

5 minutes before and 15 and 25 after intervention in each phase

Method of measurement

mm/hg for BP, number for Pulse and respiratory rate announced by vital sign monitoring system Pooyandegan rahe Saadat made by Iran

Intervention groups

1

Description

on every patients two intervention was performed with a 3 hours interval. we divided patients randomaly in to two group. on patient in group A in first phase of study endotracheal suctioning was performed without rib cage compression. With a minimum 3 hours interval , this procedure repeated this time with rib cage compression. for group B in the first phase endotracheal suctioning was performed with rib cage compression. With a minimum 3 hours interval between the two interventions this procedure repeated this time without rib cage compression.. vital sign and Spo2 were assessed three times: 5 minutes before endotracheal suctioning, 15 and 25 minutes after endotracheal suctioning. Data were recorded on the data recording sheet.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center
Valiasr and Ayatollah Mossavi educationl hospital of Zanjan

Full name of responsible person
Dr. Saied Agha Hassan Kashani ,Super professionalist of critical care,

Street address
Valiasr educational hospital, ZUMS

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Zanjan University of Medical Sciences and Health Services

Full name of responsible person
Dr. Alireza Biglari

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Zanjan, Zanjan University of Medical Sciences and Health Services, Research

City
Zanjan

Grant name
اعتبارات پژوهشی

Grant code / Reference number

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

Title of funding source
Zanjan University of Medical Sciences and Health Services

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
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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