

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

22 Jun 2026

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

#### Protocol summary

2012-05-21, 1391/03/01

#### 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 zanzan. 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.

#### Registrant information

##### Name

Mitra Payami Bousari

##### Name of organization / entity

Zanzan University of Medical Sciences and Health Services

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Iran (Islamic Republic of)

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#### Recruitment status

##### Recruitment complete

#### Funding source

Vice chancellor for research, Zanzan 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

#### 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

mechanically ventilated patients

### **Purpose**

Prevention

### **Inclusion/Exclusion criteria**

Inclusion criteria: men patients with stable hemodynamic status within 18-70 years old, with Hct more than 25%, without hyperthermia, chest injury, chest tube, chest surgery and ventilated on PEEP mode, patient with active asthma and emphysema, using endotracheal suctioning 1 hour before intervention. Exclusion criteria: receiving any kind of paralytic muscular drug like Pavlon in intervention time zone, start/stop or change in vasodilator drug in intervention time zone, change in ventilator setup, using endotracheal suctioning 1 hour 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

##### **City**

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 before 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 randomly 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 Zanja

**Full name of responsible person**

Dr. Saied Agha Hassan Kashani ,Super professionalist of critical care,

**Street address**

Valiasr educational hospital, ZUMS

**City**

Zanja

**Other areas of specialty/work****Street address**

Zanja,nursing and midwifery faculty of Zanja University of Medical Sciences and Health Services, Parvin Eesami Ave.,\

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payami@zums.ac.ir

**Web page address**

## Sponsors / Funding sources

1

### Sponsor

**Name of organization / entity**

Zanja University of Medical Sciences and Health Services

**Full name of responsible person**

Dr. Alireza Biglari

**Street address**

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

**City**

Zanja

**Grant name**

اعتبارات پژوهشی

**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

Yes

**Title of funding source**

Zanja 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**

Zanja University of Medical Sciences and Health Services

**Full name of responsible person**

Mitra payami Bousari

**Position**

PhD, assisstant professor

## Person responsible for scientific inquiries

### Contact

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## Person responsible for updating data

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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*