

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

02 Jul 2026

### Survey effect of manual percussion and mechanical vibration on respiratory indexes in mechanically ventilated patients

#### Protocol summary

Pulmonary compliance Airway Resistance Arterial blood oxygen saturation

#### Study aim

The effect of manual percussion and mechanical vibration on pulmonary parameters of patients undergoing mechanical ventilation in intensive care units

#### Design

A randomized crossover clinical trial

#### Settings and conduct

For each patient, there are 90 minutes intervals between manual percussion and mechanical vibration which is done by researcher. To perform a manual percussion, the wrist strikes the right wrist, which is cup-shaped and equal in strength from the height of ten centimeters to the back and front of the patient's chest. The chest is divided into four segments, percussion done for each with a thirty-second. These beats are performed at speeds of 4 times per second for 4 minutes at the time of Inhale and exhale To vibrate, a constant frequency of 2 Hz is used, and is performed by the researcher for 1 to one and a half minutes during the patient's breathing during exhalation. The shaking is done by placing the vibrating device on the back and front of the chest. In this intervention, the chest is divided into four upper and lower right and left sections, each of which is vibrated by five vibrations during exhalation.

#### Participants/Inclusion and exclusion criteria

Age over 18 years Being connected to a mechanical ventilator Complete cardiopulmonary monitoring Hemodynamic stability in the last 6 hours according to anesthesiologist Absence of spinal cord injuries No lung disease and no pneumothorax, hemothorax and rib fracture Recurrent volume of gastric discharge less than 100 ml before intervention

#### Intervention groups

Group A is the group which first receive manual percussion and after the wash out period mechanical vibration is performed on them Group B is the group that is first mechanical vibration performed after the washout period receive manual percussion.

#### Main outcome variables

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20100921004787N6**

Registration date: **2020-02-19, 1398/11/30**

Registration timing: **prospective**

Last update: **2020-02-19, 1398/11/30**

Update count: **0**

##### Registration date

2020-02-19, 1398/11/30

##### Registrant information

##### Name

Tahereh Khaleghdoost Mohammadi

##### Name of organization / entity

Guilan University of Medical Sciences

##### Country

Iran (Islamic Republic of)

##### Phone

+98 13 1555 5058

##### Email address

khaleghdoost@gums.ac.ir

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2020-03-29, 1399/01/10

##### Expected recruitment end date

2020-05-30, 1399/03/10

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

**Trial completion date**  
empty

**Scientific title**  
Survey effect of manual percussion and mechanical vibration on respiratory indexes in mechanically ventilated patients

**Public title**  
Survey effect of manual percussion and mechanical vibration on respiratory indexes in mechanically ventilated patients in Rasht Poursina hospital critical care units 2019- 2020

**Purpose**  
Prevention

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
Age over 18 years Connected to mechanical ventilation Complete cardiopulmonary monitoring Hemodynamic stability in the last 6 hours according to anesthesiologist  
Absence of spinal cord injuries No pulmonary disease and no pneumothorax, hemothorax and rib fracture  
Recurrent volume of gastric lavage less than 100 ml before intervention  
**Exclusion criteria:**  
Hemodynamic parameters instability Increased intracranial pressure The need for emergency suctioning during the intervention Changes in ventilator device settings and modes during the study Patient leaving the ward to perform paraclinical procedures and withdraw from monitoring

**Age**  
From **18 years** old

**Gender**  
Both

**Phase**  
N/A

**Groups that have been masked**  

- Participant

**Sample size**  
Target sample size: **62**

**Randomization (investigator's opinion)**  
Randomized

**Randomization description**  
Specimens are assigned randomly to quadruple blocks in order to select the sequence of intervention in groups A and B, which will be sequenced using " Random block " software. The proprietary Randomized Allocation is kept in a sealed package with the ward supervisor. And before starting the intervention will open. Based on the daily and inpatient referrals in the section according to the sequence of samples will be divided into groups A and B. Group A is the group which first receive manual percussion and after the wash out period mechanical vibration is performed on them and Group B is the group that is first mechanical vibration performed after the washout period receive manual percussion.

**Blinding (investigator's opinion)**  
Single blinded

**Blinding description**

participant. They do not know the order of the interventions

**Placebo**  
Not used

**Assignment**  
Crossover

**Other design features**

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Ethics committee of Guilan University of Medical Sciences

##### Street address

Student of Nursing and Midwifery Faculty, Shahid Beheshti Highway, Rasht

##### City

Rasht

##### Province

Guilan

##### Postal code

4146939841

#### Approval date

2020-01-18, 1398/10/28

#### Ethics committee reference number

IR.GUMS.REC.1398.468

## Health conditions studied

### 1

#### Description of health condition studied

Chest physiotherapy

#### ICD-10 code

#### ICD-10 code description

## Primary outcomes

### 1

#### Description

Pulmonary compliance

#### Timepoint

Before intervention and 1, 5, 15, 30 minutes after intervention in each group

#### Method of measurement

View on ventilator screen

### 2

#### Description

Airway resistance

#### Timepoint

Before intervention and 1, 5, 15, 30 minutes after intervention in each group

## Method of measurement

View on ventilator screen

### 3

#### Description

Percentage of arterial blood oxygen saturation

#### Timepoint

Before intervention and 1, 5, 15, 30 minutes after intervention in each group

#### Method of measurement

From the monitoring screen connected to the patient

## Secondary outcomes

empty

## Intervention groups

### 1

#### Description

First Intervention group: or group A: the group that first received manual percussion and after wash out period mechanical vibration perform on them .one hour after suction and before the intervention started ,the indices like pulmonary compliance and airway resistance seen on the ventilator screen is recorded as well as the percentage of arterial oxygen saturation from the monitor next to the patient's bed. Indicators are recorded immediately after each intervention, and at 1, 5, 15 and 30 minutes after each intervention.

#### Category

Prevention

### 2

#### Description

Intervention group: the group that first received mechanical vibration and after wash out period manual percussion perform on them .one hour after suction and before intervention started ,the indices like pulmonary compliance and airway resistance seen on the ventilator screen is recorded as well as the percentage of arterial oxygen saturation from the monitor next to the patient's bed. Indicators are recorded immediately after each intervention, and at 1, 5, 15 and 30 minutes after each intervention.

#### Category

Prevention

## Recruitment centers

### 1

#### Recruitment center

##### Name of recruitment center

Poursina Medical and Educational Hospital

##### Full name of responsible person

Nasim Rasoulnia

##### Street address

Poursina Crossroads Rasht Poursina Educational

Hospital

##### City

Rasht

##### Province

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##### Postal code

1319441937

##### Phone

+98 13 3332 2444

##### Fax

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poursina\_pr@yahoo.com

##### Web page address

## Sponsors / Funding sources

### 1

#### Sponsor

##### Name of organization / entity

Rasht University of Medical Sciences

##### Full name of responsible person

Mohamad reza Naghipoor

##### Street address

Namjoo Street Rasht

##### City

Rasht

##### Province

Guilan

##### Postal code

4144666949

##### Phone

+98 13 3333 6394

##### Email

naghi@gums.ac.ir

#### Grant name

#### Grant code / Reference number

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

No

#### Title of funding source

Guilan university of medical science

#### Proportion provided by this source

1

#### Public or private sector

Public

#### Domestic or foreign origin

Domestic

#### Category of foreign source of funding

empty

#### Country of origin

#### Type of organization providing the funding

Academic

## Person responsible for general inquiries

#### Contact

##### Name of organization / entity

Rasht University of Medical Sciences

##### Full name of responsible person

Nasim Rasoulnis

##### Position

Student of Master science of medical surgical nursing

**Latest degree**

Bachelor

**Other areas of specialty/work**

Nursery

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science committee

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Master

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**Person responsible for scientific inquiries**

**Contact**

**Name of organization / entity**

Rasht University of Medical Sciences

**Full name of responsible person**

Tahereh Khaleghdoost Mohammadi

**Position**

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**Latest degree**

Master

**Other areas of specialty/work**

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**Person responsible for updating data**

**Contact**

**Name of organization / entity**

Rasht University of Medical Sciences

**Full name of responsible person**

Tahereh Khaleghdoost Mohammadi

**Position**

**Sharing plan**

**Deidentified Individual Participant Data Set (IPD)**

Undecided - It is not yet known if there will be a plan to make this available

**Study Protocol**

Yes - There is a plan to make this available

**Statistical Analysis Plan**

Undecided - It is not yet known if there will be a plan to make this available

**Informed Consent Form**

Yes - There is a plan to make this available

**Clinical Study Report**

Undecided - It is not yet known if there will be a plan to make this available

**Analytic Code**

No - There is not a plan to make this available

**Data Dictionary**

Undecided - It is not yet known if there will be a plan to make this available

**Title and more details about the data/document**

Once the data collection is complete, the decision will be made

**When the data will become available and for how long**

Starting access after printing the article

**To whom data/document is available**

Everyone who reads the article

**Under which criteria data/document could be used**

Everyone wants to refer to the article

**From where data/document is obtainable**

Article Printers Magazine Website

**What processes are involved for a request to access data/document**

Additional information can be requested by email

**Comments**