

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

27 May 2026

### Comparison of effect of lung hyper oxygenation and combination of hyper oxygenation and hyperinflation on arterial blood gas and physiological parameters before and after endo tracheal suctioning in critical care patients in Bahonar and Afzalipur hospital in Kerman.

#### Protocol summary

##### Summary

Endotracheal tube suctioning is an essential and frequency nursing intervention in intensive care units. This includes the removal of secretions from the respiratory tract in patient which has an artificial airway is special. Providing appropriate methods to facilitate the clearance of airway secretions, lung volumes for synthetic and save provide measures to minimize complications, the most important part of the nursing care is patients with tracheal tube in intensive care units. The major complication of suction is a Hypoxemic hypoxia. Due to oxygen is off during the procedure and also increases the amount of oxygen consumed, this result to decrease in tissue oxygenation. hyperoxygenation and hyperinflation and combining these two methods are prevention of suctioning-related arterial oxygen depletion. Therefore, the decrease in arterial blood oxygen during suctioning and the detailed information about the quality and effectiveness of each of these methods are not available, in the previous studies, different and contradictory results can be seen and their impact on arterial blood gas and physiologic parameters are not proven. We accomplish these methods to helping nurses with better suction and less complication. This study is a clinical trial (Cross over); 36 patients admitted to the ICU that have the inclusion criteria will be randomly divided into two groups. In hyperoxygenation, patients receive concentration of 100% before and after suctioning procedure for 2 minutes by using keys O2 flush on mechanical ventilation. In combination therapy hyperoxygenation and hyperinflation, before and after suctioning, simultaneously for 2 min, tidal volume mechanical ventilation increased to 150% base rate and respiratory rate cut to 8 breaths per minute and 100% oxygen to the patient. Then researcher take arterial blood sample

before, after and during suctioning and checks the impact of these methods on physiological parameters (HR, MAP, BP) and some indicators of arterial blood gas (PH, Pao<sub>2</sub>, O<sub>2</sub>Sat, PaCo<sub>2</sub> and HCO<sub>3</sub><sup>-</sup>) on 36 patients admitted to the intensive care unit. Instrument for data collection is check list which includes 2 tables to record the results of the demographic characteristics and arterial blood sampling and continuous monitoring of the parameters of the patient.

#### General information

##### Acronym

ETS

##### IRCT registration information

IRCT registration number: **IRCT2013030612726N1**

Registration date: **2013-05-07, 1392/02/17**

Registration timing: **retrospective**

Last update:

Update count: **0**

##### Registration date

2013-05-07, 1392/02/17

##### Registrant information

###### Name

Maryam Mohammadi

###### Name of organization / entity

Kerman University of Medical Sciences

###### Country

Iran (Islamic Republic of)

###### Phone

+98 34 1727 1275

###### Email address

891563011@collegian.kmu.ac.ir

##### Recruitment status

**Recruitment complete**

## Funding source

School of Nursing and Midwifery, Kerman

## Expected recruitment start date

2013-01-20, 1391/11/01

## Expected recruitment end date

2013-02-19, 1391/12/01

## Actual recruitment start date

empty

## Actual recruitment end date

empty

## Trial completion date

empty

## Scientific title

Comparison of effect of lung hyper oxygenation and combination of hyper oxygenation and hyperinflation on arterial blood gas and physiological parameters before and after endo tracheal suctioning in critical care patients in Bahonar and Afzalipur hospital in Kerman.

## Public title

Impact of using hyperoxygenation and hyperinflation on reducing side complications of suctioning

## Purpose

Prevention

## Inclusion/Exclusion criteria

Inclusion of patients:1:To reduce the risk of pneumonia caused by hospital error the maximum time that they under mechanical ventilation and intubation is 48 hours . 2: in the range of 50 to 150 beats per minute heart rate and without arrhythmia . 3 : Allen test is positive. 4:they dont have COPD. 5:they dont have cyanotic disease and right to left shant and CHF andValvular heart disease . 6:the patient is not required suctioned frequently (often in less than 60 minutes) . 7 :electrolytes (sodium, potassium and calcium)are in normal ranges and O<sub>2</sub>sa is above the 92% I: E Ratio, 2:1, and PEEP: 5 and TV: 10-15 mg / kg (the normal amount of sodium: 135 to 145 milligrams per liter Meq. Potassium: 5/3 -5 / 5 mg l Meq. Calcium: 6/8 - 2/10 mg per deciliter). 8: adults within the age of 18 years. 9: the ventilator attached to the patient,is CMV . 10:Patients with Arterial line . excluded Conditions: 1: if the patient hemodynamic imbalances such as: heart rate More than 200 systolic and less than 60, bronchospasm and respiratory distress and severe restlessness, test was stopped and the patient is then connected to the ventilator

## Age

From **18 years** old

## Gender

Both

## Phase

N/A

## Groups that have been masked

*No information*

## Sample size

Target sample size: **36**

## Randomization (investigator's opinion)

Randomized

## Randomization description

## Blinding (investigator's opinion)

Not blinded

## Blinding description

### Placebo

Not used

### Assignment

Crossover

### Other design features

This study was conducted for the first time in the world

## Secondary Ids

empty

## Ethics committees

### 1

#### Ethics committee

##### Name of ethics committee

Kerman University of Medical Sciences

##### Street address

kerman-enghelab street - Building Medical Center

##### City

kerman

##### Postal code

00000000

#### Approval date

2012-04-20, 1391/02/01

#### Ethics committee reference number

90/526/478/905

## Health conditions studied

### 1

#### Description of health condition studied

Patients admitted to the ICU and complications

#### ICD-10 code

Z00-Z99

#### ICD-10 code description

This chapter should not be used for international comparison or for primary mortality coding.

## Primary outcomes

### 1

#### Description

Blood gas

#### Timepoint

Immediately and 30 min after intervention

#### Method of measurement

Gem preimer blood gas 2000

### 2

#### Description

Physiologic parameters

#### Timepoint

Immediately and 30 min aftr intervention

#### Method of measurement

Monitoring

## Secondary outcomes

### 1

**Description**

age

**Timepoint**

before intervention

**Method of measurement**

patient's document

### 2

**Description**

sex

**Timepoint**

before intervention

**Method of measurement**

patient's document

### 3

**Description**

smoking

**Timepoint**

before intervention

**Method of measurement**

patient's document

### 4

**Description**

Drug Addiction

**Timepoint**

before intervention

**Method of measurement**

patient's document

### 5

**Description**

dignisis

**Timepoint**

before intervention

**Method of measurement**

patient's document

### 6

**Description**

tidal volume

**Timepoint**

before intervention

**Method of measurement**

ventilator

## Intervention groups

### 1

**Description**

Hyperoxygenation: prior to and after suctioning using O2 flush key on ventilator ,for two minutes, the patient give

O2 100%.

**Category**

Treatment - Other

### 2

**Description**

Combination of hyperoxygenation and hyperinflation: befor and after suctioning for 2 minutes,pt giving o2 100% by ventilator and Simultaneously tidal volume breathing on a ventilator at a rate of 150% of the base rate was raised, and this after suctioning to 2 minutes were repeated.

**Category**

Treatment - Other

## Recruitment centers

### 1

**Recruitment center****Name of recruitment center**

Bahonar hospital

**Full name of responsible person**

Mohammadi Maryam

**Street address**

Bahonar hospital, Kerman

**City**

Kerman

## Sponsors / Funding sources

### 1

**Sponsor****Name of organization / entity**

Kerman University of Medical Sciences

**Full name of responsible person**

Jila Soltanahmadi

**Street address**

Pardizeh street

**City**

Kerman

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

Yes

**Title of funding source**

Kerman 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**

School of Nursing and Midwifery

**Full name of responsible person**

Maryam Mohammadi

**Position**

Critical care student

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**Web page address**

## Person responsible for updating data

### Contact

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## Person responsible for scientific inquiries

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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*