Clinical Trial Protocol
Iranian Registry of Clinical Trials

16 Sep 2026

Comparison of hemodynamic parameters between low flow Isoflurane and low flow Sevoflurane in patients during anesthesia with controlled ventilation Laryngeal Mask Airway

Protocol summary

Summary

Laryngeal mask airway is a simple device for airway protection and anesthesia with low complications, which is widely used in elective surgeries. In low flow anesthesia, an inhaled anesthetic gas with a breathing system in which the rate of re-breathing is at least 50% is used. Several studies compared the hemodynamic stability during isoflurane anesthesia with Sevoflurane which have shown different results. Therefore, this study aims to compare the hemodynamic stability between low flow Isoflurane and low flow Sevoflurane anesthesia during controlled ventilation with Laryngeal Mask Airway. Eighty adult patients with ASA I and II class, aging 20-75 years without the risk of airway problems, history of malignant hyperthermia, diabetes mellitus and kidney problems, candidates for elective surgery will be included in this study. Patients will be randomly divided into two groups, one group of low flow anesthesia with isoflurane and other group of low flow anesthesia with Sevo.f. Standard monitoring during induction of anesthesia in all patients will be done. Systolic blood pressure, diastolic blood pressure, heart rate, ETCO2 and mean arterial pressure will be measured every 5 minutes in each group. Therefore, this study aims to compare the hemodynamic stability between low flow Isoflurane and low flow Sevoflurane anesthesia during controlled ventilation with Laryngeal Mask Airway. Eighty adult patients with ASA I and II class, aging 20-60 years without the risk of airway problems, history of malignant hyperthermia, diabetes mellitus and kidney problems, candidates for elective surgery will be included in this study. Patients will be randomly divided into two groups, one group of low flow anesthesia with isoflurane and other group of low flow anesthesia with Sevo.f. Standard monitoring during induction of anesthesia in all patients will be done. Systolic blood pressure, diastolic blood pressure, heart rate, ETCO2 and mean arterial pressure will be measured every 5 minutes in each group.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201202202582N4**
Registration date: **2012-03-17, 1390/12/27**
Registration timing: **registered_while_recruiting**

Last update:
Update count: **0**

Registration date

2012-03-17, 1390/12/27

Registrant information

Name
Ata Mahmoodpoor
Name of organization / entity
Tabriz University of Medical Sciences
Country
Iran (Islamic Republic of)
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Recruitment status

Recruitment complete

Funding source

Tabriz University of Medical Sciences

Expected recruitment start date

2012-02-04, 1390/11/15

Expected recruitment end date

2012-07-05, 1391/04/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of hemodynamic parameters between low flow Isoflurane and low flow Sevoflurane in patients during anesthesia with controlled ventilation Laryngeal Mask Airway

Public title

Comparison of low flow Isoflurane and low flow Sevoflurane anesthesia during controlled ventilation with Laryngeal Mask Airway

Purpose

Treatment

Inclusion/Exclusion criteria

inclusion criteria: Adult patients with ASA I and II class; aging 20-60 years; candidates for elective surgery
Exclusion criteria: the possibility of airway problem; history of malignant hyperthermia; lack of proper monitoring; co2 absorbant failure; uncompensated diabetes mellitus; prolonged starvation; chronic and acute alcoholism; smoking; presence of severe kidney problems

Age

From **20 years** old to **75 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **80**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Tabriz University of Medical Sciences

Street address

Golgasht street

City

Tabriz

Postal code

Approval date

2011-02-28, 1389/12/09

Ethics committee reference number

4993/4/5

Health conditions studied

1

Description of health condition studied

Hemodynamic changes

ICD-10 code

R03

ICD-10 code description

Abnormal blood-pressure reading, without diagnosis

Primary outcomes

1

Description

Mean Arterial Pressure

Timepoint

every 5 minutes

Method of measurement

in mmHg using manometer

2

Description

heart rate

Timepoint

every 5 minutes

Method of measurement

beat in minute

Secondary outcomes

1

Description

side effects

Timepoint

every 5 minutes

Method of measurement

physical examination

Intervention groups

1

Description

in intervention group: sevoflurane 2-2.5% in initial phase and 3-3.5% in low flow phase

Category

Treatment - Drugs

2

Description

in control group: isoflurane with fresh gas flow of 6 L/min in initial phase and 1 L/min in low flow phase

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Nikookary hospital

Full name of responsible person

Ata Mahmoodpoor

Street address

Abbasi street

City

Tabriz

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tabriz University of Medical Sciences, Research chancellor

Full name of responsible person

Alireza Ostadrahimi

Street address

Golgasht street

City

Tabriz

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Tabriz University of Medical Sciences, Research chancellor

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

Tabriz University of Medical Sciences

Full name of responsible person

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Position

medical student

Other areas of specialty/work

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Web page address

Person responsible for updating data

Contact

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