Clinical Trial Protocol
Iranian Registry of Clinical Trials

30 May 2026

Comparing the effects of Furosemide, Mannitol, and Dopamine on Diuresis in Patients with Cesarean Section under Spinal Anesthesia

Protocol summary

Study aim

Comparing the effects of furosemide, mannitol, and dopamine on diuresis in patients with cesarean section under spinal anesthesia.

Design

Patients are randomly divided into three intervention and one control groups and the study is design as a randomised, controlled, parallel group trial with double blinded outcome assessment. Randomisation will centralised based on simple randomization method using random digits table.

Settings and conduct

Eighty patients undergoing cesarean section are randomly divided and evaluated into three intervention and control groups (n=20) in Ahvaz Imam Khomeini hospital. Participants, researchers responsible for data collection and analyses are blinded to the groups allocation.

Participants/Inclusion and exclusion criteria

Inclusion criteria are patients in age group 18 to 45 years and complete pregnancy period (based on weeks). The exclusion criteria are patients with acute renal failure with inadequate cardiac output and tissue perfusion, dialysis-dependent patients and not having normal levels of creatinine and BUN.

Intervention groups

Mannitol group received 100 ml 20% mannitol serum intravenously for the last 30 min of the surgery; furosemide group received infusion of 0.25 mg/kg of furosemide in 500 cc normal saline serum for 30 min of the surgery, dopamine group received a renal dose of 0.25 to 2 µg/kg/min in 500 cc of normal saline serum, and control group received 500 cc normal saline serum without any drug for 30 min.

Main outcome variables

The urine output is measured at 0 (immediately after admission to recovery room), 2 and 6 hours after the completion of the surgical operation.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20191012045070N1**
Registration date: **2019-11-05, 1398/08/14**
Registration timing: **registered_while_recruiting**

Last update: **2019-11-05, 1398/08/14**
Update count: **0**

Registration date

2019-11-05, 1398/08/14

Registrant information

Name

Ali Hasani

Name of organization / entity

Country

Iran (Islamic Republic of)

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2019-09-23, 1398/07/01

Expected recruitment end date

2020-03-15, 1398/12/25

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparing the effects of Furosemide, Mannitol, and Dopamine on Diuresis in Patients with Cesarean Section under Spinal Anesthesia

Public title
Comparing the Effects of Furosemide, Mannitol, and Dopamine on Diuresis in Patients under Cesarean Section
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Age group 18 to 45 years Complete pregnancy period (based on weeks)
Exclusion criteria:
Patients with acute renal failure with inadequate cardiac output and tissue perfusion Dialysis-dependent patients Not having normal levels of creatinine and BUN
Age
From **18 years** old to **45 years** old
Gender
Female

Phase
3
Groups that have been masked

- Participant
- Data analyser

Sample size
Target sample size: **80**
Randomization (investigator's opinion)
Randomized
Randomization description
Individuals are randomly divided into four groups based on simple randomization method using random digits table. In this method, a collection of non-template numbers is randomly generated and arranged as a table. A collection of numbers is considered for each group and the patients are asked to select one of the table numbers. According to the selected number, they are randomly assigned to one of the intervention or control groups.
Blinding (investigator's opinion)
Double blinded
Blinding description
Participants are informed about the purpose and method of study. After receiving informed consent, they are blinded to the study groups to unify patients in terms of their empathy sense. Researchers responsible for data collection and analyses will also blinded to the groups allocation for preventing personal viewpoint.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics committee of Ahvaz University of Medical Sciences
Street address
Research deputy, Ahvaz Jundishapur University Of Medical Sciences, Golestan Blvd.
City
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Province
Khouzestan
Postal code
6135715794
Approval date
2019-06-08, 1398/03/18
Ethics committee reference number
IR.AJUMS.REC.1398.198

Health conditions studied

1

Description of health condition studied
Cesarean Section
ICD-10 code
O82.8
ICD-10 code description
Other single delivery by caesarean section

Primary outcomes

1

Description
Urine output volume
Timepoint
0 (immediately after admission to recovery room), 2 and 6 hours after the completion of the surgical operation
Method of measurement
Urine output volume based on CC

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group (1): Patients are received 100 ml 20% mannitol serum intravenously for the last 30 min of the surgery.
Category
Treatment - Drugs

2

Description
Intervention group (2): Patients are received infusion of 0.25 mg/kg of furosemide in 500 cc normal saline serum for 30 min of the surgery.
Category
Treatment - Drugs

3

Description
Intervention group (3): Patients are received a renal dose of 0.25 to 2 µg/kg/min dopamine in 500 cc of normal saline serum.
Category
Treatment - Drugs

4

Description
Control group: Patients are received 500 cc normal saline serum without any drug for 30 min.
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
Imam Khomeini Hospital, Ahvaz Jundishapur University of Medical Sciences
Full name of responsible person
Kaveh Behaeen
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Sponsors / Funding sources

1

Sponsor
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Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Ahvaz University of Medical Sciences
Proportion provided by this source
100
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
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Ali Hasani Gohargan
Position
Resident
Latest degree
Medical doctor
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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

Undecided - It is not yet known if there will be 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

Undecided - It is not yet known if there will be 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

Not applicable

Data Dictionary

Not applicable