Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Comparison between neostigmine and atropine added to standard post-dural puncture headache regimen versus standard regimen alone

Protocol summary

Study aim

The objective of this study is to compare the treatment efficacy of adding neostigmine and atropine to standard treatment regimen versus standard regimen alone for post-dural puncture headache (PDPH) in patients after caesarian section delivery.

Design

Double blind, single center, interventional randomized controlled trial Divided into two groups: Modified treatment group (n=65) Standard treatment group (n=65) Studied in two phases (Pain scores in phase 1 and adverse effects in phase 2) The patient were randomized using non-probability consecutive sampling via lottery method on cards given to the resident on duty in the intervention suite

Settings and conduct

This was a double-blind study, carried out at the Dept of Anesthesiology, CMH Kharian. sealed envelopes containing pre-made regimes were given in both groups with the administering anesthetist and the anesthetist recording the results unaware of the drug formulation and the study protocol

Participants/Inclusion and exclusion criteria

Inclusion criteria included all patients with post-dural puncture headache presenting to the anesthesia clinic 48-72 hours after caesarian delivery. Exclusion criteria included patients unwilling for IV or oral therapy, refusal to be included in the study, patients with allergy to either atropine, neostigmine, paracetamol and/or ibuprofen, patients with known history of migraine, cluster headache

Intervention groups

Patients in the standard regimen received the institute followed conservative management. Patients in the modified regimen received the same protocol and drugs of the standard regimen as well as IV neostigmine 20 mcg/kg and atropine 10 mcg/kg in 20 ml.

Main outcome variables

Primary variables measured was pain threshold on visual analog scale (VAS)12 at 6,12,24,48, and 72 hours after the start of treatment.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230920059483N1**
Registration date: **2024-02-10, 1402/11/21**
Registration timing: **retrospective**

Last update: **2024-02-10, 1402/11/21**
Update count: **0**

Registration date

2024-02-10, 1402/11/21

Registrant information

Name

Qaim Bhatty

Name of organization / entity

Combined military hospital kharian

Country

Pakistan

Phone

+92 331 6333113

Email address

qaimalibhatty@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-01-01, 1401/10/11

Expected recruitment end date

2023-06-30, 1402/04/09

Actual recruitment start date

2023-01-01, 1401/10/11

Actual recruitment end date

2023-06-30, 1402/04/09

Trial completion date

2023-06-30, 1402/04/09

Scientific title

Comparison between neostigmine and atropine added to standard post-dural puncture headache regimen versus standard regimen alone

Public title

Addition of neostigmine and atropine to standard post-dural puncture headache

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Included all patients with post-dural puncture headache diagnosed according to the International Headache Society Criteria, presenting to the anesthesia clinic 48-72 hours after caesarian delivery.

Exclusion criteria:

Patients unwilling for IV or oral therapy Refusal to be included in the study Patients with allergy to either atropine, neostigmine, paracetamol and/or ibuprofen Patients with known history of migraine, cluster headache, patients on anti-depressants Patients with any neurological disease and patients with major respiratory and cardiac disease.

Age

From **25 years** old to **35 years** old

Gender

Female

Phase

2

Groups that have been masked

- Participant
- Investigator
- Data analyser

Sample size

Target sample size: **130**

Actual sample size reached: **130**

Randomization (investigator's opinion)

Randomized

Randomization description

Double blind interventional randomized controlled trial. This randomized controlled trial was carried out at Anesthesia department of Combined Military Hospital, Kharian The patients were divided into the modified treatment group (Group M) (n=65) and the standard treatment group (Group S) (n=65) after randomization. One was given the standard regimen and the other received the modified regimen with atropine added. The method of randomization was simple non-probability consecutive sampling via lottery method. The lottery envelopes were placed in the pre-anesthesia clinic and patients presenting for treatment of PDPH were asked to pick one at random and segregated into one of the two groups. The randomization was done in sealed envelopes with the resident consultant on duty containing pre-prepared treatment vials as unmarked syringes to be given in both groups according to the treatment guide

Blinding (investigator's opinion)

Double blinded

Blinding description

This was a double-blind study and once the patients were divided into the two groups, both the drug administering anesthetist and the anesthetist recording the results were unaware of the study protocol or the randomization group details. The lottery envelopes were placed in the pre-anesthesia clinic and patients presenting for treatment of PDPH were asked to pick one at random and segregated into one of the two groups. The randomization was done in sealed envelopes with the resident consultant on duty containing pre-prepared treatment vials as unmarked syringes to be given in both groups according to the treatment guide. Both the patient as well as the resident giving the treatment was unaware of the drugs being given as well as the study protocol. Proforma for analysis was also marked with nondescript group to blind the assessor of the outcome of each group of study.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethical review board CMH Kharian, Pakistan

Street address

Main GT Road

City

Kharian

Postal code

50090

Approval date

2022-12-25, 1401/10/04

Ethics committee reference number

CMH-KHN-00100

Health conditions studied

1

Description of health condition studied

Post dural puncture headache

ICD-10 code

G44

ICD-10 code description

Other headache syndromes

Primary outcomes

1

Description
Pain on Visual Analog Scale
Timepoint
6,12,24,48,72 hours after intervention
Method of measurement
Standard Visual Analog Scale

Secondary outcomes

1

Description
Nausea
Timepoint
Within 72 hours after intervention
Method of measurement
Patient history and observation in the wards

2

Description
Neck stiffness
Timepoint
Within 72 hours after intervention
Method of measurement
Physical examination

3

Description
Need for blood patch
Timepoint
Within 72 hours of intervention
Method of measurement
Non-responsive to standard IV treatment after 24 hours

Intervention groups

1

Description
Intervention group: Group M (Modified regimen group) Patients in the modified regimen received the same protocol and drugs of the standard regimen as well as IV neostigmine 20 mcg/kg and atropine 10 mcg/kg in 20 ml in the same 8 hourly intervals till the time pain threshold on the visual analog scale was <3. Patients with VAS <3 before 72 hours were still given 20 ml of 0.9% normal saline to maintain blinding.
Category
Treatment - Drugs

2

Description
Intervention group: Group S (Standard regimen group) Patients in the standard regimen received the institute followed conservative management of IV Paracetamol 15mg/kg, IV Ibuprofen 5 mg/kg, IV Ondansetron 4 mg, IV Omeprazole 40 mg, Ringer lactate at 1.5 ml/kg/hr and caffeine 135 mg.
Category
Treatment - Drugs

Recruitment centers

1

Recruitment center
Name of recruitment center
CMH Kharian, Pakistan
Full name of responsible person
Dr Qaim Ali Bhatti
Street address
Main GT Road
City
Kharian
Postal code
50090
Phone
+92 331 6333113
Email
qaimalibhatty@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Combined Military Hospital Kharian, Pakistan
Full name of responsible person
Dr Qaim Ali Bhatti
Street address
Main GT Road
City
Kharian
Postal code
50090
Phone
+92 331 6333113
Email
qaimalibhatty@gmail.com
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Combined Military Hospital Kharian, Pakistan
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
Other

Person responsible for general inquiries

Contact

Name of organization / entity
Combined Military Hospital Kharian

Full name of responsible person
Dr Qaim Ali Bhatti

Position
Trainee

Latest degree
Medical doctor

Other areas of specialty/work
Anesthesiology

Street address
CMH hospital , kharian cantt

City
Kharian

Province
Punjab

Postal code
50090

Phone
+92 331 6333113

Fax

Email
qaimalibhatty@gmail.com

Person responsible for scientific inquiries

Contact

Name of organization / entity
Combined military hospital kharian

Full name of responsible person
Dr Qaim Ali Bhatti

Position
Trainee

Latest degree
Medical doctor

Other areas of specialty/work
Anesthesiology

Street address
CMH hospital , kharian cantt

City
Kharian

Province
Punjab

Postal code
50090

Phone
+92 331 6333113

Fax

Email
qaimalibhatty@gmail.com

Person responsible for updating data

Contact

Name of organization / entity
Combined military hospital kharian

Full name of responsible person
Dr Qaim Ali Bhatti

Position
Trainee

Latest degree
Medical doctor

Other areas of specialty/work
Anesthesiology

Street address
CMH hospital , kharian cantt

City
Kharian

Province
Punjab

Postal code
50090

Phone
+92 331 6333113

Fax

Email
qaimalibhatty@gmail.com

Sharing plan

Deidentified Individual Participant Data Set (IPD)
Yes - There is a plan to make this available

Study Protocol
Yes - There is a plan to make this available

Statistical Analysis Plan
Yes - There is a plan to make this available

Informed Consent Form
Yes - There is a plan to make this available

Clinical Study Report
Yes - There is a plan to make this available

Analytic Code
Yes - There is a plan to make this available

Data Dictionary
Yes - There is a plan to make this available

Title and more details about the data/document
The data will be shared after the manuscript approval by the concerned publishing journal. Request to be forwarded to the main focal person given in details by email and after permission would be shared by email to the requesting person/organization.

When the data will become available and for how long
After approval of manuscript for publication and would be available with the focal person and organization indefinitely

To whom data/document is available
For research and academic institutions after permission from the focal person.

Under which criteria data/document could be used
For research and academic purposes only Focal person given in details and email address provided to be used for all queries

From where data/document is obtainable
From the focal person via email after formal request and approval from the institute. Process would be done by the focal person.

What processes are involved for a request to access data/document
A formal email requesting the data required with official name and designation of the person requiring. Would be

given after focal person receives confirmation from own institute to share the data. Approximate processing time 7-10 days.

Comments