

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Comparing the efficacy of Inferior alveolar nerve block (IANB), IANB along with buccal infiltration and modified intraseptal of Articaine in mandibular molars affected with irreversible pulpitis

Protocol summary

Summary

The purpose of this prospective, randomized, double-blind clinical study is to compare the efficacy of inferior alveolar nerve block (IANB), IANB with buccal infiltration and modified intraseptal injection of articaine in mandibular molars with irreversible pulpitis. Ninety healthy patients with the diagnosis of symptomatic irreversible pulpitis and normal periapical in mandibular molars will participate in this study and allocate randomly in three groups. The patients are asked to rate their pain on VAS after using cold test (VAS1). The teeth also are tested using electrical pulp tester (EPT1). In first group patient will receive standard IANB injection using 1.8 ml of 2% lidocaine with 1:100,000 epinephrine. In the second group they will be administered standard IANB using 1.8 ml of 2% lidocaine with 1:100,000 epinephrine and buccal infiltration using 1.8 ml of 4% articaine with 1:100,000 epinephrine. In the third group, the patient will receive modified intraseptal using 1.8 ml of 4% articaine with 1:100,000 epinephrine. The injection of 1 ml anesthetic solution in the buccal vestibule and 0.8 ml of anesthetic solution in the mesial and distal dental papilla is considered as modified intraseptal. All injections will be done by a single operator. After 10 minutes, the pulpal anesthesia will be measured by electrical pulp tester (EPT2), then the access cavity will be prepared. If patients do not report lip numbness 10 minutes after IANB injection, they exclude from the study. Patients will be instructed to rate any discomfort during access on the Heft-Parker visual analogue (VAS2) scale. The success of anesthesia are defined as reading EPT ≥ 80 and the ability to access the tooth with no or mild pain (VAS ≤ 54).

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015073023412N1**

Registration date: **2017-10-15, 1396/07/23**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2017-10-15, 1396/07/23

Registrant information

Name

Omid Dianat

Name of organization / entity

Dental School of Shahid Beheshti University of Medical science

Country

Iran (Islamic Republic of)

Phone

+98 21 2240 3010

Email address

omidianat@sbm.ac.ir

Recruitment status

Recruitment complete

Funding source

Shahid Beheshti University of Medical Sciences

Expected recruitment start date

2016-02-20, 1394/12/01

Expected recruitment end date

2016-07-31, 1395/05/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparing the efficacy of Inferior alveolar nerve block (IANB), IANB along with buccal infiltration and modified intraseptal of Articaine in mandibular molars affected with irreversible pulpitis

Public title

The efficacy of three different anesthetic technique in mandibular molars

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: Healthy patients; aged 18 to 65 years; No allergy to lidocaine or articaine with 1:100,000 epinephrine; No pregnancy; having mandibular molars teeth with irreversible pulpitis and normal periapical radiographic appearance; Clinical diagnosis of irreversible pulpitis was confirmed by a positive response to an electric pulp test and a prolonged response with moderate to severe pain to a cold test using Roeko Endo-Frost . Exclusion criteria: presence of periodontal ligament (PDL) widening or periapical radiolucency; recently taken nervous system depressant or analgesic medication within 12 hours before treatment; absence of vital coronal pulp tissue during access preparation; failure to report lip numbness 10 minutes after inferior alveolar nerve block injection.

Age

From **18 years** old to **65 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **90**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Double blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

Random number table will use for randomization patients and clinician who record the results do not aware of type of intervention

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethic committee of Shahid Behsheti University of Medical Science

Street address

Daneshju Blv. Evin Blv. Chamran highway

City

Tehran

Postal code

1983963113

Approval date

2015-12-22, 1394/10/01

Ethics committee reference number

ir.sbm.u.ri.ds.rec.1394.77

Health conditions studied

1

Description of health condition studied

pulpitis

ICD-10 code

K04

ICD-10 code description

Diseases of pulp and periapical tissues, irreversible pulpitis

Primary outcomes

1

Description

pain

Timepoint

Before intervention and 10 minutes after intervention

Method of measurement

Heft- parker Visual analog scales

Secondary outcomes

1

Description

Pulp sensivity

Timepoint

Before injection and 10 minutes after injection

Method of measurement

Electerical pulp test

Intervention groups

1

Description

group I: inferior alveolar nerve block (IANB) injection of 1.8 ml of 2% lidocaine with epinephrin 1;100000

Category

Treatment - Drugs

2

Description

group II: inferior alveolar nerve block injection of 1.8 ml

lidocain 2% with epinephrin 1:100000 and buccal infiltration of 1.8 ml articaine 4% with epinephrin 1:100000

Category

Treatment - Drugs

3

Description

group III: intraseptal injection of 0.8 ml articaine 4% with epinephrine 1:100000 and buccal infiltration of 1ml articaine 4% with epinephrine 1:100000

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Dental School of Shahid Beheshti University of Medical Sciences

Full name of responsible person

Dr Omid Dianat

Street address

Daneshju Blv, Evin St, Tehran, Iran

City

Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for research, Shahid Beheshti University of Medical Sciences

Full name of responsible person

Dr Afshin Rezghi

Street address

Daneshju Blv. Evin. Chamran highway

City

Tehran

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Vice chancellor for research, Shahid Beheshti 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

Dental School of Shahid Beheshti University of Medical Science

Full name of responsible person

Dr Omid Dianat

Position

Associated professor

Other areas of specialty/work

Street address

Dental school, Shahid Beheshti University, Daneshju Blv. Evin Blv. Chamran highway

City

Tehran

Postal code

Phone

+98 21 2240 3075

Fax

Email

omidianat@gmail.com

Web page address

Person responsible for scientific inquiries

Contact

Name of organization / entity

Shahid Beheshti University of Medical Sciences, Dental school

Full name of responsible person

Dr Omid Dianat

Position

Associated Professor

Other areas of specialty/work

Street address

Dental school, Shahid Beheshti University, Daneshju Blv, Evin Blv, Chamran Highway,

City

Tehran

Postal code

Phone

+98 21 2240 3010

Fax

Email

omidianat@gmail.com

Web page address

Person responsible for updating data

Contact

Name of organization / entity

Dental School, Shahid Beheshti University of Medical Science

Full name of responsible person

Shiva Shojaeian

Position

Assistant Professor

Other areas of specialty/work

Street address

Daneshju Blv, Evin, Chamran Highway

City

Tehran

Postal code

1983963113

Phone

+98 21 2240 3075

Fax**Email**

shiva.shojaeian@gmail.com

Web page address**Sharing plan****Deidentified Individual Participant Data Set (IPD)**

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Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty