

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jul 2026

A clinical trial to compare the effectiveness of therapy with low-level laser and Er,Cr:YSGG laser for decreasing the dentinal hypersensitivity after periodontal surgery

Protocol summary

Study aim

The effectiveness of therapy with low-level laser and Er,Cr:YSGG laser for decreasing the dentinal hypersensitivity after periodontal surgery

Design

Totally, 24 candidate patients for periodontal surgery were chosen from Dental Clinic of Mashhad Faculty of Dentistry. In this double-blind, controlled clinical trial, the patients are assigned into parallel groups using random sampling methods.

Settings and conduct

Patients whose undergoing periodontal surgery and referring to the Dental Clinic of Mashhad Faculty of Dentistry, are chosen as the participants of the study. In this double-blind study, the participant and person responsible for data collection are blind to group allocation and the type of intervention.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Age range of 20-65 years; requiring periodontal surgery in one or more quadrants of the jaw due to the pocket probing depth of more than 5 mm. Exclusion criteria: Having caries lesions or defective restorations; using analgesic or anti-inflammatory drugs; pregnant and breastfeeding women; using anti-allergic drugs in the last 6 months; using anti-sensitive toothpaste in the last 3 months.

Intervention groups

Intervention group I will receive combining both wavelengths of 660 and 810 nm low-level laser. Intervention group II will receive Er,Cr:YSGG laser. Intervention group III will receive fluoride varnish treatment. Control group will receive Placebo laser.

Main outcome variables

To compare the effectiveness of dentin hypersensitivity using cold spray after removal of a periodontal dressing, after laser irradiation, and one week after the intervention.

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20091118002736N5**

Registration date: **2020-11-07, 1399/08/17**

Registration timing: **prospective**

Last update: **2020-11-07, 1399/08/17**

Update count: **0**

Registration date

2020-11-07, 1399/08/17

Registrant information

Name

Farzaneh Ahrari

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 51 1883 1145

Email address

ahrarif@mums.ac.ir

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-11-21, 1399/09/01

Expected recruitment end date

2022-01-21, 1400/11/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

A clinical trial to compare the effectiveness of therapy with low-level laser and Er,Cr:YSGG laser for decreasing the dentinal hypersensitivity after periodontal surgery

Public title

The effectiveness of Laser radiation therapy on dentinal hypersensitivity

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Age range of 20-65 years Requiring periodontal surgery in one or more quadrants of the jaw due to the pocket probing depth of more than 5 mm

Exclusion criteria:

Having caries lesions or defective restorations Using analgesic or anti-inflammatory drug Pregnant and breastfeeding women Using anti-allergic drugs in the last 6 months Using anti-sensitive toothpaste in the last 3 months

Age

From **20 years** old to **65 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **24**

Randomization (investigator's opinion)

Randomized

Randomization description

The subjects will be randomly assigned into three groups of 24 patients with categories of 2, 4, 6 and 8 using the randomization method. A noninvolved researcher will determine the random assignment sequencing in sampling using a statistical analysis system (SAS), computer software. Sealed opaque envelopes will be used to conceal the sequencing. Accordingly, the participants were given codes and assigned into the four intervention and control groups.

Blinding (investigator's opinion)

Double blinded

Blinding description

Patients whose undergoing periodontal surgery and referring to Dental Clinic of Mashhad Faculty of Dentistry, are chosen as the participants of the study. In this double-blind study, the participant and person responsible for data collection are blind to group allocation and the type of intervention.

Placebo

Used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Mashhad University of Medical Sciences

Street address

Dental Clinic of Mashhad Faculty of Dentistry, Opposite Mellat Park, Vakilabad Blvd

City

Mashhad

Province

Razavi Khorasan

Postal code

9177873476

Approval date

2019-04-22, 1398/02/02

Ethics committee reference number

IR.MUMS.DENTISTRY.REC.1398.022

Health conditions studied

1

Description of health condition studied

Dentin hypersensitivity

ICD-10 code

K08.8

ICD-10 code description

Other specified disorders of teeth and supporting structures

Primary outcomes

1

Description

Dentin hypersensitivity using cold spray

Timepoint

After removal of a periodontal dressing, after laser irradiation, and one week after intervention

Method of measurement

Based on visual analogue scale (VAS)

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group I will receive combining both wavelengths of 660 and 810 nm low-level laser.

Category

Treatment - Other

2

Description

Intervention group II will receive Er,Cr:YSGG laser.

Category

Treatment - Other

3

Description

Intervention group III will receive fluoride varnish treatment.

Category

Treatment - Other

4

Description

Control group will receive Placebo laser.

Category

Placebo

Recruitment centers

1

Recruitment center

Name of recruitment center

Mashhad Faculty of Dentistry Dental Clinic

Full name of responsible person

Amir Moeintaghavi

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Dental Clinic of Mashhad Faculty of Dentistry,
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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Mohsen Tafaghodi

Street address

Vice Chancellor for Research, Mashhad University of
Medical Sciences, Ghoreishi building, Daneshgah
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Grant name

941408

Grant code / Reference number

941408

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

Yes

Title of funding source

Mashhad 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

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Farzaneh Ahrari

Position

Associate Professor

Latest degree

Specialist

Other areas of specialty/work

Dentistry

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Person responsible for scientific inquiries

Contact

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Sharing plan**Deidentified Individual Participant Data Set (IPD)**

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

The data of the patients are not allowed to be shared.

Study Protocol

No - There is not a plan to make this available

Statistical Analysis PlanUndecided - 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**Undecided - It is not yet known if there will be a plan to
make this available**Data Dictionary**Undecided - It is not yet known if there will be a plan to
make this available**Person responsible for updating data****Contact****Name of organization / entity**

Mashhad University of Medical Sciences

Full name of responsible person

Farzaneh Ahrari

Position

Associate Professor

Latest degree

Specialist

Other areas of specialty/work

Dentistry

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