Clinical Trial Protocol
Iranian Registry of Clinical Trials

23 Jul 2026

Evaluation the Effect of Two Types of High Power Diode Lasers 810nm and 980nm in the Treatment of Dentin Hypersensitivity

Protocol summary

Study aim
To determine the Effect of Two Types of High Power Diode Lasers 810nm and 980nm in the Treatment of Dentin Hypersensitivity

Design
Clinical trial with control group, parallel group trial with double blinded form. Randomisation was used with random number table.

Settings and conduct
This study will be done on patients with dentin hypersensitivity referring department of periodontics of Isfahan University. Two types of high power Diode lasers 810 and 980 nm are evaluated. Patient and statistician are blinded.

Participants/Inclusion and exclusion criteria
Inclusion criteria: patients referring to Dental Faculty of Isfahan University of Medical Sciences who have cervical dentin hypersensitivity in at least three teeth in three separate half-jaws. Teeth that are sensitive to cold stimulant testing. Exclusion criteria: caries; restored teeth; crown fracture; dental cracks; smokers; active periodontal disease; pregnancy; patients who have taken analgesics for 72 hours before the laser treatment; patients who have received anti-sensitivities toothpaste over the past 6 weeks.

Intervention groups
Radiation with 810 nm diode laser Radiation with 980 nm diode laser

Main outcome variables
Initial improvement of dentin hypersensitivity

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20120901010703N3**
Registration date: **2020-11-02, 1399/08/12**
Registration timing: **retrospective**
Last update: **2020-11-02, 1399/08/12**
Update count: **0**

Registration date
2020-11-02, 1399/08/12

Registrant information

Name
Narges Naghsh

Name of organization / entity
Isfahan University of Medical Sciences

Country
Iran (Islamic Republic of)

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+98 31 1792 5564

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2019-02-09, 1397/11/20

Expected recruitment end date
2020-04-24, 1399/02/05

Actual recruitment start date
2019-05-15, 1398/02/25

Actual recruitment end date
2020-01-20, 1398/10/30

Trial completion date
2020-01-20, 1398/10/30

Scientific title
Evaluation the Effect of Two Types of High Power Diode Lasers 810nm and 980nm in the Treatment of Dentin Hypersensitivity

Public title
Effect of Two Types of High Power Lasers in the Treatment of Dentin Hypersensitivity

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Patients referring to dental faculty of Isfahan University of Medical Sciences who have cervical dentin hypersensitivity in at least three teeth in three separate half-jaws. Teeth that are sensitive to cold stimulant testing.

Exclusion criteria:

Caries Restored teeth Crown fracture Dental cracks Smokers Active periodontal disease Pregnancy Patients who have taken analgesics for 72 hours before the laser treatment Patients who have received anti-sensitivities toothpaste over the past 6 weeks

Age

From **30 years** old to **50 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Participant

Sample size

Target sample size: **70**

Actual sample size reached: **70**

Randomization (investigator's opinion)

Randomized

Randomization description

Participants selection in the study will perform by simple randomization method, individually and with random number table tools. In this way, a number will be written in front of the name of each person from the list of clients, then a table will be designed based on the sample size of the study, and we'll blindly touch a number of table numbers. The selected numbers will be included in the study if they are eligible after the examination. The intervention will be performed in a parallel design, and the choice of individuals for Intervention or Control will be randomly performed with coin instruments.In such a way that for both people whose names are accidentally put in the list, the first person uses Diode laser 810 and the second uses Diode laser 980, and vice versa if it is tails

Blinding (investigator's opinion)

Single blinded

Blinding description

Patient and statistician are not informed of type of laser used.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethical committee of Isfahan University of Medical Sciences

Street address

Isfahan University of Medical Sciences, Hezarhrib street

City

Isfahan

Province

Isfehan

Postal code

8174673461

Approval date

2016-01-05, 1394/10/15

Ethics committee reference number

394844 :كد تحقيقاتي

Health conditions studied

1

Description of health condition studied

Dentin hypersensitivity

ICD-10 code

G89.9

ICD-10 code description

Other chronic pain

Primary outcomes

1

Description

Amount of patient's pain

Timepoint

Before treatment, 15 minutes after first session, 15 minutes after second session, 1 week after end of treatment, 1 month after end of treatment, 2 months after end of treatment

Method of measurement

Using cold spray

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: group treated by 810 nm laser, irradiation parameters are: power of 1 watt in a non-contact continues mode from a distance of 1 mm with the angle of 45 ° for 30 seconds with a sweeping motion. Treatments were carried out in two sessions, a weekly interval. The pain evaluated by using VAS (Visual Analyzing Scale) index by applying dry ice spray at all times.

Category
Treatment - Devices

2

Description
Intervention group: group treated by 980 nm laser, irradiation parameters are: power of 1 watt in a non-contact continues mode from a distance of 1 mm with the angle of 45 ° for 30 seconds with a sweeping motion. Treatments were carried out in two sessions, a weekly interval. The pain evaluated by using VAS (Visual Analyzing Scale) index by applying dry ice spray at all times.
Category
Treatment - Devices

3

Description
Control group: Without intervention
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Isfahan University of Medical Sciences
Full name of responsible person
Mahdieh Bijari
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Sponsors / Funding sources

1

Sponsor
Name of organization / entity
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Grant name
Shaghayegh Haghjoo Javanmard
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Esfahan 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
Esfahan University of Medical Sciences
Full name of responsible person
Narges Naghsh
Position
Assistant professor
Latest degree
Specialist
Other areas of specialty/work
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Person responsible for scientific inquiries

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Person responsible for updating data

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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
No - There is not 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