Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

Clinical effectiveness of an 810-nm diode laser in addition to non-surgical periodontal therapy in patients with chronic periodontitis: A randomized single-blind clinical trial

Protocol summary

Study aim
Evaluation of the efficacy of an 810-nm diode laser as an adjunct to scaling and root planing (SRP) in improving periodontal parameters in patients with chronic periodontitis.

Design
randomized, superiority, parallel group, controlled trial with blinded outcome assessment

Settings and conduct
School of dentistry of Mashhad University of Medical Sciences

Participants/Inclusion and exclusion criteria
This clinical trial consists of 36 patients with chronic periodontitis and pocket depths of 4-6 mm

Intervention groups
One week after SRP, the quadrants are randomly divided into two sides; one side of each patient is selected as the laser group (SRP + laser) and the other side serves as the control group (SRP alone).

Main outcome variables
The clinical parameters including bleeding on probing (BOP), probing depth (PD), plaque index (PI), and clinical attachment level (CAL) are measured at baseline, and at 6 and 18 weeks after therapy.

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20091118002736N3**
Registration date: **2020-02-06, 1398/11/17**
Registration timing: **registered_while_recruiting**

Last update: **2020-02-06, 1398/11/17**
Update count: **0**

Registration date
2020-02-06, 1398/11/17

Registrant information

Name
Farzaneh Ahrari

Name of organization / entity

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Iran (Islamic Republic of)

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2019-12-22, 1398/10/01

Expected recruitment end date
2020-02-19, 1398/11/30

Actual recruitment start date
empty

Actual recruitment end date
empty

Trial completion date
empty

Scientific title
Clinical effectiveness of an 810-nm diode laser in addition to non-surgical periodontal therapy in patients with chronic periodontitis: A randomized single-blind clinical trial

Public title
effectiveness of diode laser in addition to periodontal therapy in patients with chronic periodontitis

Purpose
Treatment

Inclusion/Exclusion criteria

Inclusion criteria:
patients older than 18 years with chronic periodontitis with pocket depths of 4-6 mm in at least four teeth per jaw quadrant.
Exclusion criteria:
Patients who have received periodontal treatment over the 12 months preceding the study those who have consumed antibiotics or anti-inflammatory drugs within the past month patients with systemic disorders pregnant, smokers or alcohol drinkers patients having partial dentures

Age
From **18 years** old

Gender
Both

Phase
N/A

Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **36**
More than 1 sample in each individual
Number of samples in each individual: **2**
The quadrants are divided into two sides (left and right); one side is randomly selected as the control group (SRP), and the other side as the laser group (SRP + laser).

Randomization (investigator's opinion)
Randomized

Randomization description
The test and control sides are determined randomly using a random numbers table.

Blinding (investigator's opinion)
Single blinded

Blinding description
The subject who assesses the outcomes is not aware of the test and control sides.

Placebo
Not 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
Daneshgah St

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Mashhad

Province
Razavi Khorasan

Postal code
9177873477

Approval date
2015-09-25, 1394/07/03

Ethics committee reference number
IR.mums.sd.REC.1394.73

Health conditions studied

1

Description of health condition studied
chronic periodontitis and pocket depths of 4-6 mm

ICD-10 code
K05.3

ICD-10 code description
Chronic periodontitis

Primary outcomes

1

Description
Bleeding on probing (BOP):

Timepoint
before the treatment (baseline), at 6 and 18 weeks later

Method of measurement
The periodontal probe is inserted approximately 2 mm into the gingival sulcus at the buccal surface of each tooth.

2

Description
Probing depth (PD)

Timepoint
before the treatment (baseline), at 6 and 18 weeks later

Method of measurement
The periodontal probe is placed in the gingival sulcus and enters as far as possible into the pocket. The pocket depth is recorded in millimeters.

3

Description
Plaque index (PI)

Timepoint
before the treatment (baseline), at 6 and 18 weeks later

Method of measurement
To determine PI, plaque detection tablets are used. The plaque index is calculated by dividing the number of plaque containing surfaces by the total number of available surfaces (four surfaces) and multiplying the result by 100.

Secondary outcomes

1

Description
Clinical attachment level (CAL):

Timepoint

before the treatment (baseline) as well as at 6 and 18 weeks later

Method of measurement

CAL is determined by measuring the distance in millimeters from the cementoenamel junction (CEJ) to the bottom of the periodontal pocket using a periodontal probe.

Intervention groups

1

Description

One side of each patient is randomly selected as the laser group (SRP + laser).

Category

Treatment - Devices

2

Description

Control group: the other side of the patient is considered as the control group.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center
School of dentistry of Mashhad University of Medical Sciences

Full name of responsible person
Majidreza Mokhtari

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
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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
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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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
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