

Clinical Trial Protocol

Iranian Registry of Clinical Trials

13 Jun 2026

Study of the clinical and microbiologic effects of 940 nm Diode laser as an adjunct to scaling and root planing in treatment of Chronic periodontitis

Protocol summary

Study aim

This study was undertaken to evaluate the effect of 940-nm diode laser on clinical parameters and microbial load in patients with chronic periodontitis.

Design

Randomized, single blinded, clinical trial

Settings and conduct

This study will be carried out on patients referred to Faculty of Dentistry, Shahed University, Tehran. Full-mouth SRP will be done with an ultrasonic device. Oral hygiene instructions, consisting of correct brushing technique and correct use of dental floss will be given to each patient. One week after completion of SRP in the test group after simple randomization with random number, 940-nm diode laser beams will be applied. One tooth from each quadrant will be selected for evaluation of clinical and microbiological parameters. Sterile paper cones will be placed in the deepest area of the pocket and after 20 seconds will be immediately placed in tubes for transferring to the laboratory. All the four samples of each patient will be sent to the laboratory. Real-time PCR will be used to determine pathogen counts.

Participants/inclusion and exclusion criteria

Inclusion criteria: -Subjects had moderate-to-severe chronic periodontitis. -At least one pocket, measuring 4–6 mm in depth, and bleeding on probing in each quadrant. -Systemic health. -Lack of active root infection or teeth caries. Exclusion criteria: -Lack of compliance. -Periodontal pockets deeper than 10 mm, and severe luxation (third degree). -Antibiotics intake during the research and in previous three months. -Smoking

Intervention groups

1. Scaling root planing as conventional treatment
2. Scaling root planing + 940 nm diode laser application

Main outcome variables

Papillary bleeding index (PBI), probing pocket depth (PPD), clinical attachment level (CAL), modified gingival index (MGI) and margin level (ML), and microbial load

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20161216031432N2**

Registration date: **2018-04-02, 1397/01/13**

Registration timing: **retrospective**

Last update: **2018-04-02, 1397/01/13**

Update count: **0**

Registration date

2018-04-02, 1397/01/13

Registrant information

Name

zahra zohri

Name of organization / entity

Shahed University, Tehran, Iran

Country

Iran (Islamic Republic of)

Phone

+98 21 8895 9210

Email address

z.zohri@shahed.ac.ir

Recruitment status

Recruitment complete

Funding source

no fund

Expected recruitment start date

2017-01-20, 1395/11/01

Expected recruitment end date

2018-02-04, 1396/11/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Study of the clinical and microbiologic effects of 940 nm Diode laser as an adjunct to scaling and root planing in treatment of Chronic periodontitis

Public title

Laser in periodontitis treatment

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Moderate to severe chronic generalized periodontitis, presence of one pocket measuring 4–6 mm in depth and bleeding on probing in all the 4 quadrants Systemic health

Exclusion criteria:

Presence of radicular infection or active caries Systemic diseases

Age

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

- Participant
- Investigator

Sample size

Target sample size: **22**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple randomization of subjects with random number table

Blinding (investigator's opinion)

Single blinded

Blinding description

Single blind; participants

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Shahed University of Medical Sciences

Street address

Shahed University, Tehran, Iran. N71, Italia Str, Vesal Ave, Tehran ,Iran.

City

Tehran

Province

Tehran

Postal code

3319118651

Approval date

2017-02-28, 1395/12/10

Ethics committee reference number

IR.Shahed.REC.1395.220

Health conditions studied

1

Description of health condition studied

Chronic periodontitis

ICD-10 code

K05.3

ICD-10 code description

Chronic pericoronitis Periodontitis: NOS complex simplex

Primary outcomes

1

Description

Pocket Probing Depth

Timepoint

before treatment, 1 month and 3 month after treatment

Method of measurement

The distance between the gingival margin and the pocket base, which will be measured at 6 points of each tooth (mesiobuccal, buccal, distobuccal, distolingual, lingual and mesiolingual) with the use of a Williams graduated probe. The mean probing depth at each site will be registered as the probing depth in that area.

2

Description

Clinical Attachment Level

Timepoint

before treatment, 1 month and 3 month after treatment

Method of measurement

Williams probe

3

Description

Gingival Level

Timepoint

before treatment, 1 month and 3 month after treatment

Method of measurement

Williams probe

4

Description

Modified Gingival Index

Timepoint

before treatment, 1 month and 3 month after treatment

Method of measurement

Observation

5

Description

Papillary Bleeding Index

Timepoint

before treatment,1 month and 3 month after treatment

Method of measurement

Periodontal probe and observation

6

Description

Porphyromonas gingivalis

Timepoint

before treatment,1 month and 3 month after treatment

Method of measurement

Real time polymerase chain reaction

7

Description

Tannerella forsythia

Timepoint

before treatment,1 month and 3 month after treatment

Method of measurement

Real time polymerase chain reaction

8

Description

Treponema denticola

Timepoint

before treatment,1 month and 3 month after treatment

Method of measurement

Real time polymerase chain reaction

Secondary outcomes

1

Description

-

Timepoint

-

Method of measurement

-

Intervention groups

1

Description

The control group: The treatment consists of scaling with an ultrasonic device and oral hygiene instructions, including how to brush correctly and use dental floss.

Category

Treatment - Devices

2

Description

The intervention group: Scaling will be carried out with the use of an ultrasonic device in association with oral

hygiene instructions, including correct brushing and use of dental floss. One week after scaling and root planing, 940-nm diode laser beams w

Category

Treatment - Devices

Recruitment centers

1

Recruitment center

Name of recruitment center

School of Dentistry of Shahed University

Full name of responsible person

Zahra Zohri (post graduate)

Street address

Shahed University, Persian gulf highway

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Tehran

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z.zohri@shahed.ac.ir

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

No sponser

Full name of responsible person

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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

No sponser

Proportion provided by this source

100

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

Persons

Person responsible for general inquiries**Contact****Name of organization / entity**

School of Dentistry of Shahed University

Full name of responsible person

Zahra Zohri

Position

Post graduate

Latest degree

Medical doctor

Other areas of specialty/work**Street address**

Shahed University, Persian gulf highway

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Person responsible for scientific inquiries**Contact****Name of organization / entity**

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Web page address

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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

All data after removal of private information will release via article publication.

When the data will become available and for how long

6 months after publication.

To whom data/document is available

Students and professors

Under which criteria data/document could be used

By written consent of investigators.

From where data/document is obtainable

Dr. Zohri

What processes are involved for a request to access data/document

email online application of the assay.

Comments