

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Effect of adjunctive use of Nd:YAG laser in periodontal surgeries in patients with generalized moderate chronic periodontitis

Protocol summary

Evaluation and comparison of the cilinical attachment level, probing depth, bleeding on probing

Study aim

Effect of adjunctive use of Nd:YAG laser in periodontal surgeries in patients with generalized moderate chronic periodontitis

Design

Clinical trial with control group, with parallel groups, One-way blind, randomized, each group 17 patients

Settings and conduct

The study will be performed in the Department of Oral and Maxillofacial Diseases of Tabriz Dental School. The outcome assessor is unaware of the type of treatment. The OFD quadrant procedure will be performed first. Two weeks later, the irradiating Nd: YAG laser will performed to the inner layer of the flap. In the experimental group, the controlled OFD quadrant procedure will be performed first. Two weeks later, will be performed irradiating Nd: YAG laser to the inner layer of the flap. In the control group, all the steps performed for the experimental group will be repeated, except, laser radiation is not performed. Finally, determining and comparing the distance between the joint of cement and enamel to the depth of the envelope, the depth of probing, bleeding during probing will be measured.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Generalized moderate chronic periodontitis, Willingness to participate in the study. Age between 20-55 Inclusion criteria: Having any systemic diseases and debilitating diseases that can affect a person's oral health, Any surgical and non-surgical periodontal treatments and antibiotic therapy performed during the last 6 months, Pregnancy, Alcohol consumption, Tobacco use during the last three months, Taking anti-inflammatory drugs and antibiotics for the past three months

Intervention groups

The two assessment groups will include the control group as open flap debridement (OFD) and the test group as open flap debridement (OFD) with Nd: YAG laser

Main outcome variables

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20200727048216N1**

Registration date: **2020-08-19, 1399/05/29**

Registration timing: **prospective**

Last update: **2020-08-19, 1399/05/29**

Update count: **0**

Registration date

2020-08-19, 1399/05/29

Registrant information

Name

Hosein Eslami

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 41 3335 5968

Email address

eslamihosein56@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2020-08-21, 1399/05/31

Expected recruitment end date

2020-11-19, 1399/08/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of adjunctive use of Nd:YAG laser in periodontal surgeries in patients with generalized moderate chronic periodontitis

Public title

Effect of adjunctive use of Nd:YAG laser in periodontal surgeries

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Generalized moderate chronic periodontitis Willingness to participate in the study Age between 20-55

Exclusion criteria:

Having any systemic diseases and debilitating diseases that can affect a person's oral health Any surgical and non-surgical periodontal treatments and antibiotic therapy performed during the last 6 months Pregnancy alcohol consumption Tobacco use during the last three months Taking anti-inflammatory drugs and antibiotics for the past three months

Age

From **20 years** old to **55 years** old

Gender

Both

Phase

1

Groups that have been masked

- Outcome assessor

Sample size

Target sample size: **17**

Randomization (investigator's opinion)

Randomized

Randomization description

Prior to surgery, randomly selected quadrants (by taping or scribbling a coin) will be assigned to the control and experimental groups.

Blinding (investigator's opinion)

Single blinded

Blinding description

Surgery will be performed by a periodontist and laser therapy will be performed by an oral medicine specialist. To measure blindness, measurements will be performed by a student under the supervision of a periodontist who is unaware of the treatment performed for the quadrants.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethic committee of Tabriz University of Medical Sciences

Street address

Floor2, Central Building No.2, Tabriz University of Medical Sciences, Golgasht St.

City

Tabriz

Province

East Azarbaijan

Postal code

5166614711

Approval date

2020-06-07, 1399/03/18

Ethics committee reference number

IR.TBZMED.REC.1399.229

Health conditions studied

1

Description of health condition studied

Generalized moderate chronic periodontitis

ICD-10 code

K05.3

ICD-10 code description

Chronic periodontitis

Primary outcomes

1

Description

Clinical attachment loss

Timepoint

Start of study, 1 and 3 months after surgery

Method of measurement

Williams probes

2

Description

Probing depth

Timepoint

Start of study, 1 and 3 months after surgery

Method of measurement

Williams probes

3

Description

Bleeding on probing

Timepoint

Start of study, 1 and 3 months after surgery

Method of measurement

Williams probes

Secondary outcomes

empty

Intervention groups

1

Description

Intervention group: In the experimental group, the controlled OFD quadrant process will be performed first. Two weeks later, Nd: YAG laser radiation will be applied to the inner layer of the flap. The Nd: YAG laser with a wavelength of 1064 nm, an average efficiency of 4 w, energy per pulse of 80 mj, a diameter of 600 µm and a disposable fiber optic tip will be used to deliver energy to the area. The 4w medium-efficiency laser is placed in the pulse depth of the envelope, avoiding direct contact with the tooth or bone, by placing the fiber-optic tip in the pulse depth. The patient will receive routine antibiotic treatments. Finally, the distance between the cement and the enamel to the depth of the envelope, the depth of the probing, and the bleeding during the probing will be measured and compared.

Category

Treatment - Devices

2

Description

Control group: The controlled OFD quadrant procedure will be performed first and the patient will receive routine antibiotic treatments after surgery. Finally, determining and comparing the distance between the joint of cement and enamel to the depth of the envelope, the depth of probing, bleeding during probing will be measured.

Category

Treatment - Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Tabriz Dental School

Full name of responsible person

Hosein Eslami

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Tabriz University of Medical Sciences

Full name of responsible person

Mohammad Samiei

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samiei.moh@gmail.com

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Tabriz 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

Tabriz University of Medical Sciences

Full name of responsible person

Hosein Eslami

Position

Assistant professor

Latest degree

Specialist

Other areas of specialty/work

Dentistry

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Person responsible for scientific inquiries

Contact

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Full name of responsible person

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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

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