Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Radiographic evaluation of interdental bone resorption in immediate implant surgery after LT-IR 660 nanometer low-level laser therapy

Protocol summary

Study aim

Radiographic evaluation of interdental bone resorption in immediate implant surgery after LT-IR 660 nanometer low-level laser therapy

Design

A randomized, single-blind, randomized intervention clinical trial on 26 patients. The sampling method is random. The method of randomization is simple and with a table of random numbers.

Settings and conduct

Among the patients referred to the maxillofacial surgery department of Tabriz Dental School who are present for tooth extraction and socket implant placement, participate in the study. Patients are randomly divided into two groups. In the intervention group, immediately after tooth extraction, the implant is placed in the silent dental area according to the standard protocol. Low-power 660 nm diode laser treatment is started immediately after surgery and repeated three times a week for two weeks. The amount of bone at the implant site is measured with the help of periapical intraoral radiography and by computer software immediately after surgery and four months later. In the control group, the laser will not be used. The evaluator is not aware of whether or not to use a laser.

Participants/Inclusion and exclusion criteria

Include criteria: Has enough bone to receive an implant without the need for bone augmentation Exclude criteria: History of radiotherapy in the craniofacial area in the last 12 months, acute infection of the mouth, untreated or uncontrolled periodontal disease.

Intervention groups

Intervention: Use of low power laser immediately after surgery three times a week for two weeks Control: No laser receiving

Main outcome variables

The rate of bone resorption

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20220529055016N1**
Registration date: **2022-06-01, 1401/03/11**
Registration timing: **registered_while_recruiting**

Last update: **2022-06-01, 1401/03/11**
Update count: **0**

Registration date

2022-06-01, 1401/03/11

Registrant information

Name

Orman Onsori

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 41 3546 5298

Email address

dr.ormanonsori@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-06-01, 1401/03/11

Expected recruitment end date

2022-06-20, 1401/03/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Radiographic evaluation of interdental bone resorption in immediate implant surgery after LT-IR 660 nanometer low-level laser therapy

Public title
The effect of low power laser on bone density at the implant site
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria:
Healthy adults at least 18 years old Enough bone to receive the implant No history of tooth extraction in the last 6 months at the selected location
Exclusion criteria:
Pregnancy or breastfeeding Systemic diseases that affect osteointegration Anticoagulants Systemic glucocorticoid therapies Habit of smoking more than 10 cigarettes a day The presence of cancer in the mouth History of seizures
Age
From **18 years** old
Gender
Both

Phase
2
Groups that have been masked

- Outcome assessor

Sample size
Target sample size: **26**
Randomization (investigator's opinion)
Randomized
Randomization description
The sampling method is random among the people referring to the maxillofacial surgery department of Tabriz Dental School. The randomization method is simple and the unit is individual. Our tool for randomization is the randomized number chart. Furthermore, the allocation of treatment to patients will be done Randomly. To do this, the types of treatment are identified with code A (with the laser) and B (without laser) then will be placed in sealed envelopes and will be stirred. Then they are randomly taken out of the bag and after observing the code, the treatment will be given to the patient. None of the patients will be informed about another patient's treatment.
Blinding (investigator's opinion)
Single blinded
Blinding description
Blinding should be done in the evaluation phase of bone resorption, which will be done by coding the studied groups. In such a way the evaluator can not diagnose the type of treatment with and without laser before evaluation.
Placebo
Not used
Assignment
Parallel
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethics Committee of Tabriz University of Medical Sciences
Street address
Second floor,Central Building No. 2, Tabriz University of Medical Sciences, Golgasht St.,
City
Tabriz
Province
East Azarbaijan
Postal code
5166614711
Approval date
2022-04-20, 1401/01/31
Ethics committee reference number
IR.TBZMED.REC.1401.078

Health conditions studied

1

Description of health condition studied
Dental implant
ICD-10 code
Z96.5
ICD-10 code description
Presence of tooth-root and mandibular implants

Primary outcomes

1

Description
The rate of bone resorption
Timepoint
In two times immediately after implant placement and 4 months later
Method of measurement
Periapical intraoral radiography

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group: Immediately after tooth extraction, the implant is placed in the socket area of the tooth according to the standard protocol. Low-power 660 nm diode laser treatment is started immediately after

surgery and repeated three times a week for two weeks. The amount of bone at the implant site is measured by periapical intraoral radiography and by computer software immediately after surgery and four months later.

Category

Treatment - Devices

2

Description

Control group: Immediately after tooth extraction, the implant is placed in the socket area of the tooth according to the standard protocol. Treatment by laser doesn't use. The amount of bone at the implant site is measured by periapical intraoral radiography and by computer software immediately after surgery and four months later.

Category

Treatment - Devices

Recruitment centers

1

Recruitment center

Name of recruitment center
Tabriz Dental School

Full name of responsible person
Dr. Farzad Ismaili

Street address
Tabriz University of Medical Sciences, Golgasht St.

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Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Tabriz University of Medical Sciences

Full name of responsible person
Dr. Mojgan Kachoei

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Tabriz University of Medical Sciences, Golgasht St.

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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
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
Dr. Farzad Ismaili

Position
Associate Professor

Latest degree
Specialist

Other areas of specialty/work
Dentistry

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Person responsible for scientific inquiries

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Person responsible for updating data

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Latest degree
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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
Not applicable

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