Clinical Trial Protocol
Iranian Registry of Clinical Trials

08 Nov 2026

Effect of 810 nanometer (nm) low level diode laser irradiation on dental implant stability in posterior mandibular region .

Protocol summary

Study aim
Aim of this study was to assess the low level laser effect on implants stability.

Design
Randomised, superiority, parallel group trial with blinded outcome assessment.

Settings and conduct
the selected patients were then were placed implants.The test and control group were matched in terms number, diameter and length of implants.all implants had almost similar torque, then were prescribe protocol postoperative.After the surgery, one of the sides of the lower jaw of the patients was randomly (computer-generated random numbers) chosen to receive low level laser treatment (test group)and then repeated 4 other time. The other side of the jaw was placebo,inactive treatment performed and served as a control (control group). stability all implants were measured within 6 week.the cases are done at Faculty of Dentistry; Ahvaze Jundishapur University of Medical Sciences.

Participants/Inclusion and exclusion criteria
The inclusion criteria were follows: 1) Need for posterior implant on the mandibular sides 2) Sufficient bone volume to receive implant without requiring bone augmentation(reconstruction)procedure in subject area The exclusion criteria were: 1) Pregnancy 2)Smoking habits 3) History of previous tooth extraction in the last six months in the selected area 4) System disease that effects osseointegration 5) Anticoagulant therapy 6) Systemic glucocorticoid therapy 7) History of radiotherapy in the craniofacial region 8) Acute infection in the mouth, uncontrolled or untreated periodontal disease 9) Patients without good oral hygiene

Intervention groups
following the split-mouth design, implants were inserted in the posterior mandible of 8 patients.one mandible side randomly received low level laser therapy (test group), while the other side was placebo (control group)

Main outcome variables
Implant stability

General information

Reason for update

Acronym

IRCT registration information
IRCT registration number: **IRCT20180407039212N1**
Registration date: **2018-05-16, 1397/02/26**
Registration timing: **retrospective**

Last update: **2018-05-16, 1397/02/26**
Update count: **0**

Registration date
2018-05-16, 1397/02/26

Registrant information

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Recruitment status
Recruitment complete

Funding source

Expected recruitment start date
2017-06-27, 1396/04/06

Expected recruitment end date
2018-12-03, 1397/09/12

Actual recruitment start date
2017-10-08, 1396/07/16

Actual recruitment end date
2018-05-01, 1397/02/11

Trial completion date

empty

Scientific title
Effect of 810 nanometer (nm) low level diode laser irradiation on dental implant stability in posterior mandibular region .

Public title
Effect of low level diode laser on dental implant stability

Purpose
Supportive

Inclusion/Exclusion criteria

Inclusion criteria:
Need for posterior implant on the mandibular sides Sufficient bone volume to receive implant without requiring bone augmentation(reconstruction)procedure in subject area

Exclusion criteria:
Pregnancy Smoking habits History of previous tooth extraction in the last six months in the selected area System disease that effects osseointegration Anticoagulant therapy Systemic glucocorticoid therapy History of radiotherapy in the craniofacial region Acute infection in the mouth, uncontrolled or untreated periodontal disease Patients without good oral hygiene

Age
No age limit

Gender
Both

Phase
N/A

Groups that have been masked

- Participant
- Investigator

Sample size
Target sample size: **28**
More than 1 sample in each individual
Number of samples in each individual: **2**
Patients with insertion at least two implants and more than one implant in bilaterally in the posterior mandible were included in the study.
Actual sample size reached: **28**
More than 1 sample in each individual
Actual sample size in each individual: **2**
A total of 28 implants were placed in eight patients following a split mouth design. the placebo group consisted of 14 implants and the laser group consisted 14 implants.Between 2 and 6 implants were inserted per patient, distributed bilaterally in the posterior mandible three patient received 2 implants (one at each side), one received six implants (three at each side), four patients received four implants (tow at each side).

Randomization (investigator's opinion)
Randomized

Randomization description
After the surgery, one of the sides of the lower jaw of the patients was randomly (computer-generated random numbers) chosen to receive low level laser treatment (test group). The other side of the jaw was placebo, without any treatment performed and served as a control (control group).

Blinding (investigator's opinion)
Double blinded

Blinding description
All assessments of the study outcomes were performed in a double blind manner, since neither patients (due to placebo) or assessors (not involved in low level laser therapy) were aware of treatment allocation.

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Ethics committee of Ahvaz Jundishapur University of Medical Sciences

Street address
Valiasr, Blvd,Golestan, Ahvaz Jundishapur University of Medical Sciences

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Approval date
2016-05-18, 1395/02/29

Ethics committee reference number
IR.AJUMS.REC.1395.196

Health conditions studied

1

Description of health condition studied
Dental implant stability

ICD-10 code
K08.1

ICD-10 code description
Complete loss of teeth

Primary outcomes

1

Description
Implant stability

Timepoint
Immediately after surgery and after 1, 3, 5 and 6 weeks

Method of measurement
Resonance Frequency Analysis (RFA)

Secondary outcomes

empty

Intervention groups

1

Description
Intervention group:In the group, diode laser 810(nm) (QuickLase, England) was erradiation by tissue probe from the buccal and lingual sides in contact without mucosa (40mw in 4 second) and repeated at 3, 7, 10, 14.
Category
Treatment - Devices

2

Description
Control group: laser irradeation was off
Category
Treatment - Devices

Recruitment centers

1

Recruitment center
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Sponsors / Funding sources

1

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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
Ahvaz 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

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Sharing plan

Deidentified Individual Participant Data Set (IPD)
No - There is not a plan to make this available
Justification/reason for indecision/not sharing IPD
Corresponding to thesis
Study Protocol
No - There is not a plan to make this available
Statistical Analysis Plan
No - There is not a plan to make this available
Informed Consent Form
No - There is not a plan to make this available
Clinical Study Report
Not applicable
Analytic Code
Not applicable
Data Dictionary
Not applicable