

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

Comparing the effect of preparing implant site with piezosurgery and conventional drilling on patient's post-operative pain and its effect on stability and bone loss around implants after 5 month period follow up

Protocol summary

Summary

30 patient candidate for implant placement in two lateral quadrants are selected for this study. half of the implant osteotomy sites are randomly prepared by conventional drilling and the other half are prepared using piezosurgery. all the surgeries are done by the same operator. after implant placement the patients are given the same analgesic order. post operative pain will be evaluated in days 1, 3 and 10 after the surgery using a VAS (Visual Analogue Scale). The implant stability would also be measured using a Osstell Mentor device at the baseline and days 90 and 150. radiographic evaluation would be done at baseline and 5 months after implant placement using parallel technique. the distance between the implant shoulder and the most coronally point of the bone-implant contact would be recorded at baseline and 5 months later. the difference is considered as marginal bone loss. finally a comparison of all the three parameters would be done between the two groups

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2016041524622N3**

Registration date: **2016-04-30, 1395/02/11**

Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2016-04-30, 1395/02/11

Registrant information

Name

Samareh Kafilzadeh

Name of organization / entity

Hamedan University of Medical Sciences

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Recruitment status

Recruitment complete

Funding source

Hamendan University of medical sciences

Expected recruitment start date

2016-04-01, 1395/01/13

Expected recruitment end date

2017-02-01, 1395/11/13

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparing the effect of preparing implant site with piezosurgery and conventional drilling on patient's post-operative pain and its effect on stability and bone loss around implants after 5 month period follow up

Public title

the effect of using piezosurgery for implant placement on post operative pain, implant stability and bone loss of implants during a 5 moths period

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: patients candidate for implant placement in two lateral quadrants; implant placement

should be at least 6 months after tooth extraction; No GBR(Guided bone regeneration) needed around implants; patients with no systemic disease; non smoker patients; No antibiotics or drugs should be taken during the last two months Exclusion Criteria: implants placed in the same sextant; implants placed in different bone densities; patients with systemic disease

Age

No age limit

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: 30

Randomization (investigator's opinion)

Randomized

Randomization description**Blinding (investigator's opinion)**

Single blinded

Blinding description**Placebo**

Used

Assignment

Parallel

Other design features**Secondary Ids**

empty

Ethics committees**1****Ethics committee****Name of ethics committee**

Hamedan University of Medical Sciences Ethics Committee

Street address

Hamedan- University of Medical Sciences

City

Hamedan

Postal code**Approval date**

2016-02-27, 1394/12/08

Ethics committee reference number

IR.UMSHA.REC.1394.513

Health conditions studied**1****Description of health condition studied**

Implant treatment

ICD-10 code

K08.1

ICD-10 code description

Loss of teeth due to accident, extraction or local

periodontal disease

Primary outcomes**1****Description**

pain

Timepoint

first day after surgery

Method of measurement

using a Visual Analogue Scale (VAS)

2**Description**

Implant stability

Timepoint

Surgery day

Method of measurement

using a Osstell Mentor device

3**Description**

Marginal bone loss

Timepoint

Surgery day

Method of measurement

Periapical radiography

Secondary outcomes**1****Description**

Pain

Timepoint

day 3 after the surgery

Method of measurement

using a Visual Analogue Scale (VAS)

2**Description**

Pain

Timepoint

day 10 after the surgery

Method of measurement

using a Visual Analogue Scale (VAS)

3**Description**

Implant Stability

Timepoint

Day 90 after the surgery

Method of measurement

Using Osstell Mentor device

4

Description

Implant Stability

Timepoint

Day 150 after the surgery

Method of measurement

Using Ostell Mentor device

5

Description

Marginal bone loss

Timepoint

5 months after surgery

Method of measurement

Periapical radiography

Intervention groups

1

Description

Control group: Osteotomy site is prepared using conventional drilling

Category

Treatment - Surgery

2

Description

Intervention group: Implant osteotomy site is prepared using piezosurgery

Category

Treatment - Drugs

Recruitment centers

1

Recruitment center

Name of recruitment center

Hamedan University of Medical Sciences

Full name of responsible person

Ehsan Hooshyar

Street address

City

Hamedan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Vice chancellor for research, Faculty of dentistry,
Hamedan University of Medical Sciences

Full name of responsible person

Shahin Kasraei

Street address

Hamedan University of Medical Sciences, Hamedan

City

Hamedan

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Vice chancellor for research, Faculty of dentistry,
Hamedan University of Medical Sciences

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Hamedan University of Medical Sciences

Full name of responsible person

Ehsan Hooshyar

Position

Assistant

Other areas of specialty/work

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty