Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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 Osstell 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
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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
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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