Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 2026

The Comparison of Implant Stability using Resonance Frequency Analysis between two different techniques of implant placement; Osteotome versus Conventional drilling: A controlled randomized clinical trial

Protocol summary

Summary

The aim of the present study was to compare implant stability in two different techniques of implant bed preparation in type III and IV bone which is usually find in posterior maxilla. In this controlled randomized clinical trial, patients who were referred to Department of Implant and needed to replace posterior missing teeth of maxilla were selected. Subjects with systemic diseases, heavy smokers and those required bone graft were not included in the study. 54 ITI dental implants were placed in 26 patients. Participants were classified into 2 groups: The osteotome technique (29 implants) and conventional drilling (25 implants). Implant stability were assessed at 4 time intervals; baseline, 1,2 and 3 month after implant placement using Resonance Frequency Analysis(RFA) method with Osstell Device. Keyword: implant stability, osteotome, drilling, resonance frequency analysis

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201405274621N2**
Registration date: **2014-06-08, 1393/03/18**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2014-06-08, 1393/03/18

Registrant information

Name

Rokhsareh Sadeghi

Name of organization / entity

Shahed Dental School

Country

Iran (Islamic Republic of)

Phone

+98 21 8895 9210

Email address

sadeghi@shahed.ac.ir

Recruitment status

Recruitment complete

Funding source

Shahed University

Expected recruitment start date

2010-01-01, 1388/10/11

Expected recruitment end date

2012-01-31, 1390/11/11

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Comparison of Implant Stability using Resonance Frequency Analysis between two different techniques of implant placement; Osteotome versus Conventional drilling: A controlled randomized clinical trial

Public title

The Comparison of Implant Stability between two different techniques of implant placement

Purpose

Treatment

Inclusion/Exclusion criteria

inclusion criteria: posterior maxillary missing tooth / teeth; minimum; 8mm ridge height and 6mm width; good oral hygiene. Exclusion criteria: systemic diseases that affect host healing responses; Heavy smoking (more than 10 cigarette per day); need for bone grafting.

Age

From **20 years** old to **70 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **32**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Single blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Shahed University

Street address
Khalij-e- Fars Free way

City
Tehran

Postal code

Approval date
2008-06-22, 1387/04/02

Ethics committee reference number
174686

Health conditions studied

1

Description of health condition studied
implant placement in edentulus area

ICD-10 code
z96.5

ICD-10 code description
Presence of tooth-root and mandibular implants

Primary outcomes

1

Description
stability of dental implant

Timepoint
baseline (implant placement)-3 months

Method of measurement
ISQ value using resonance frequency analysis

Secondary outcomes

empty

Intervention groups

1

Description
inervention: using osteotome technique for implant placement

Category
Treatment - Surgery

2

Description
control group: use of conventional drilling for implant placement

Category
Treatment - Surgery

Recruitment centers

1

Recruitment center

Name of recruitment center
Shahed University, Dental School, Implant dept

Full name of responsible person
Dr.R.Sadeghi

Street address
Italia St., Vesal St., no. 39

City
Tehran

2

Recruitment center

Name of recruitment center
Tehran Uni. of Medical Sciences, Dental School, Implant Dept.

Full name of responsible person
Dr. A.R.Rokn

Street address
Resaerch center of dental school- Ghods St.- Keshavarz Blvd.

City
Tehran

Sponsors / Funding sources

1

Sponsor

Name of organization / entity
Shahed University, Depuity of Research

Full name of responsible person
Dr. Z. Kiasalary

Street address
Khalij-e- Fars Free way
City
Tehran
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Shahed University, Depuity of Research
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
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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