Clinical Trial Protocol
Iranian Registry of Clinical Trials

26 Jun 2026

Adjunctive Photodynamic Therapy using Light emitting diode in the Treatment of Advanced Chronic Periodontitis

Protocol summary

Summary

Periodontitis is defined as the inflammation of the gingiva and the adjacent attachment apparatus .Major goal of periodontal therapy is removal of bacterial biofilms from subgingival surface. The complete removal of bacterial biofilms is difficult to be accomplished. Recently, some studies have mentioned the potential antimicrobial effect of photodynamic therapy (PDT) in the treatment of periodontitis. However, there are only limited and contrary data on this subject. The aim of this study was to evaluate the short term effects of adjunctive PDT on periodontal parameters such as bleeding on probing (BOP), probing depth(PD) and clinical attachment loss (CAL) in advanced chronic periodontitis. This study is a randomized, controlled and double-blind clinical trial. 16 patients with clinical diagnosis of advance chronic periodontitIs with at least 2 periodontal pockets (4-6mm) in each quadrant are included. In each person, all teeth will be received periodontal treatment including scaling and root planning. Then, in a randomized splint mouth design which each person will blind to his/her treatment, in each person, one quadrant will be treated by PDT using Light-emitting diod(LED) (625-635nm,200mw/cm2 ,30 s for each site, fotoson CMS Dental ,Denmark) in the presence of toluidine blue O (TBO) and, one quadrant will be treated only by using Light-emitting diode(LED) (625-635nm,200mw/cm2 ,30 s for each site, fotoson CMS Dental ,Denmark) without presence of toluidine blue O, one quadrant will be treated only by toluidine blue O and one quadrant (control site), will not receive any adjunctive treatment. Clinical assessment of BOP, PD and CAL will be made at baseline and a month and three months after treatment by a blind investigator.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201011261150N4**
Registration date: **2011-04-13, 1390/01/24**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2011-04-13, 1390/01/24

Registrant information

Name

Neda Moslemi

Name of organization / entity

Tehran university of Medical Sciences

Country

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Recruitment status

Recruitment complete

Funding source

Laser Research Center of Dentistry (LRCD), School of Dentistry, Tehran University of Medical Sciences

Expected recruitment start date

2010-04-21, 1389/02/01

Expected recruitment end date

2010-09-23, 1389/07/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Adjunctive Photodynamic Therapy using Light emitting diode in the Treatment of Advanced Chronic Periodontitis

Public title
Application of Photodynamic therapy in the treatment of gum disease
Purpose
Treatment
Inclusion/Exclusion criteria
Inclusion criteria: clinically diagnosis of advanced chronic periodontitis with more than 3 mm clinical attachment loss; presence of at least two teeth with probing depth of 4 to 6 mm without furcation involvment in each quadrant; at least 16 remaining teeth. Exclusion criteria: periodontal treatment in the past 12 months; evidence of systemic disease related to periodontal problems; use of antibiotics for the past 6 months; pregnancy; addiction to any kind of drugs; smoking more than 10 cigarettes per day.
Age
From **18 years** old
Gender
Both

Phase
N/A
Groups that have been masked
No information
Sample size
Target sample size: **16**
Randomization (investigator's opinion)
Randomized
Randomization description
Blinding (investigator's opinion)
Double blinded
Blinding description
Placebo
Used
Assignment
Other
Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee
Name of ethics committee
Ethic committee of Vice chancellor for research, Tehran University of Medical Sciences
Street address
Ghods st, Keshavarz blvrd
City
Tehran
Postal code
1417653761
Approval date
2010-11-14, 1389/08/23
Ethics committee reference number
1035/130

Health conditions studied

1

Description of health condition studied
chronic periodontitis
ICD-10 code
K05.3
ICD-10 code description
Chronic periodontitis

Primary outcomes

1

Description
Probing pocket depth
Timepoint
Baseline, one month, three month
Method of measurement
Probing pocket depth was measured to nearest millimeter from gingival margin to base of the clinical pocket by William`s periodontal probe.

2

Description
Clinical attachment loss
Timepoint
Baseline, one month, three month
Method of measurement
it was calculated as distance in millimeter from a cement-enamel junction to the bottom of probable pocket at experimental sites

3

Description
Bleeding upon probing
Timepoint
Baseline, one month, three month
Method of measurement
recording the presence or the absence of bleeding up to 30 second after probing with a William`s periodontal probe. Bop was measure in 6 sites per each tooth

Secondary outcomes

1

Description
plaque index
Timepoint
baseline, One month, Three month
Method of measurement
plaque index for teeth number 16,12,24,36,32,44 was evaluated according to silness index were scored between 0 to 3

Intervention groups

1

Description
In group 1:first, the photosensitizer will be applied at the bottom of each periodontal pocket.Then, LED light was used to activate photosensitizer
Category
Treatment - Other

2

Description
the photosensitizer was applied at the bottom of each periodontal pocket without using LED
Category
Other

3

Description
LED irradiation was applied for 30 seconds without usin PS
Category
Other

4

Description
quadrant (control site), will not receive any adjunctive treatment
Category
N/A

Recruitment centers

1

Recruitment center
Name of recruitment center
Periodontology, Dentistry faculty,Tehran University of Medical Sciences
Full name of responsible person
Dr. Neda Moslemi
Street address
City
Tehran

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Laser Research Center of Dentistry (LRCD)
Full name of responsible person
Dr. Sima Shahabi
Street address
School of Dentistry, Tehran University of Medical Sciences
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Tehran
Grant name
Grant code / Reference number
Is the source of funding the same sponsor organization/entity?
Yes
Title of funding source
Laser Research Center of Dentistry (LRCD)
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