

INPLASY PROTOCOL

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Support: None.

Review Stage at time of this submission: The review has not yet started.

Conflicts of interest:

None declared.

INTRODUCTION

Review question / Objective: What is the efficacy of the use of diode laser (810-980 nm) in association with scaling and root planing compared to scaling and root planing alone (placebo) in the non-surgical treatment of periodontitis?

Clinical effectiveness of the infrared diode laser (810-980 nm) in conjunction with scaling and root planing in comparison with scaling and root planning alone (placebo) in the non-surgical treatment of periodontitis: a systematic review

Chavez-Zarate, NN¹; Rivera-Ledezma, NS²; Ponce-Lozano, PL³; Chavez-Mendez, MA⁴.

Review question / Objective: What is the efficacy of the use of diode laser (810-980 nm) in association with scaling and root planing compared to scaling and root planing alone (placebo) in the non-surgical treatment of periodontitis?

Condition being studied: Periodontitis is a chronic multifactorial inflammatory disease associated with a dysbiotic biofilm and characterized by progressive destruction of the tooth-supporting apparatus, which can lead to toothloss.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 09 March 2023 and was last updated on 09 March 2023 (registration number INPLASY202330037).

Condition being studied: Periodontitis is a chronic multifactorial inflammatory disease associated with a dysbiotic biofilm and characterized by progressive destruction of the tooth-supporting apparatus, which can lead to toothloss.

METHODS

Search strategy: Medline (Pubmed) ("Laser diode 810-980nm "[All Fields] OR "Scaling and root planing OR "laser therapy") AND ("Chronic periodontitis "[All Fields] OR "periodontitis"[All Fields]) AND [("reduced periodontium" OR "periodontal attachment" [All Fields]) AND ("periodontal disease" OR "periodontal treatment" [All Fields]) AND ("bone defects" OR "reduced periodontium" [All Fields])("Laser diode 810-980nm "[All Fields] OR "Scaling and root planing OR "laser therapy") AND ("Chronic periodontitis "[All Fields] OR "periodontitis"[All Fields]) AND [("reduced periodontium" OR "periodontal attachment" [All Fields]) AND ("periodontal disease" OR "periodontal treatment" [All Fields]) AND ("bone defects" OR "reduced periodontium" [All Fields])].

Participant or population: Adult patients (at least 18 years old) submitted to non-surgical periodontal treatment. There was no restriction regarding ethnicity or gender. Patients with periodontitis.

Intervention: Scaling and root planing in conjunction with the use of diode laser (810-980nm).

Comparator: Scaling and root planing alone or (placebo).

Study designs to be included: Randomized and non-randomized clinical trials.

Eligibility criteria: Randomized and non-randomized clinical trials that included individuals with at least 3 months of follow-up.

Information sources: An electronic search will be carried out in six databases: PubMed, Scopus, Embase, Birem (SciELO and LILACS), Cochrane Library and Web of Science.

Main outcome(s): Clinical attachment level gain.

Additional outcome(s): Probing depth reduction and bleeding on probing.

Quality assessment / Risk of bias analysis:

Two reviewers (NC and NR), will be assess the risk of bias in the studies selected, using the Cochrane risk-of-bias tool, RoB 2 (version 2, available at: <https://www.riskofbias.info/welcome/rob-2-0-tool/current-version-of-rob-2>). The authors to assess the result related to "assignment to intervention (the intention to treat effect)" and five domains were examined: (i) bias arising from the process of randomization and allocation concealment, (ii) bias due to deviations from intended interventions that involved masking of participants and the team of researchers, (iii) bias due to missing outcome data, (iv) bias in the measurement of the outcome, and (v) bias in selection of the result reported. Based on the responses to the signaling questions and algorithms of this tool, each domain will be judged to have "low risk of bias", "some concerns relating to the risk of bias," or "high risk of bias". Studies will be categorized as being at low risk of bias (all domains were at low risk of bias), high risk of bias (one or more domains were at high risk of bias), some concerns (if one or more domains had some concerns). Disagreements will be resolved by discussion, consulting a third reviewer (CP).

For prospective non-randomized studies, the ROBINSI tool will be use considering seven domains: bias due to confounding (1), participants selection (2), classification of intervention (3), deviations from intended intervention (4), missing data (5), measurements of the outcome (6), and selecting the reported result (7). The tool was judged for each domain and resulted in an overall judgment of low, moderate, serious, critical, or no information for each study.

Strategy of data synthesis: One author will be responsible for statistical data collection and analysis. The meta-analyses will be performed considering the mean difference (MD) between baseline and different follow-ups for each outcome (clinical attachment level, probing depth and bleeding on probing).

Subgroup analysis: Subgroup analyses will be performed whenever possible.

Sensitivity analysis: Sensitivity analyses will be performed whenever possible.

Country(ies) involved: Peru.

Keywords: Periodontitis, non-surgical periodontal treatment, laser.

Contributions of each author:

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