

# INPLASY PROTOCOL

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## EFFECT OF PERIODONTAL TREATMENT IN HIV+ PATIENS: A SYSTEMATIC REVIEW

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**Support:** None.

**Review Stage at time of this submission:** Piloting of the study selection process.

**Conflicts of interest:**  
None declared.

**Review question / Objective:** The objective of our study is to evaluate whether periodontal treatment influences clinical outcomes and immunological conditions in HIV+ patients. (P) **Participants:** VIH+ patients. (I) **Interventions:** Surgical treatment, photodynamic therapy, antimicrobials, others. (C) **Comparison:** Non-surgical treatment. (O) **Outcome measures:** - Periodontal outcomes: plaque scores, bleeding on probing, periodontal pocket Depth, clinical attachment levels; - VIH outcomes: -Count CD4+; -Microbiological analysis. **Condition being studied:** Our study will analyze the effect of periodontal treatment in HIV+ patients and will evaluate changes in periodontal, immunological and microbiological parameters.

**INPLASY registration number:** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 January 2023 and was last updated on 12 January 2023 (registration number INPLASY202310032).

### INTRODUCTION

**Review question / Objective:** The objective of our study is to evaluate whether periodontal treatment influences clinical outcomes and immunological conditions in HIV+ patients. (P) **Participants:** VIH+ patients. (I) **Interventions:** Surgical treatment, photodynamic therapy,

antimicrobials, others. (C) **Comparison:** Non-surgical treatment. (O) **Outcome measures:** - Periodontal outcomes: plaque scores, bleeding on probing, periodontal pocket Depth, clinical attachment levels; - VIH outcomes: -Count CD4+; -Microbiological analysis.

**Rationale:** The human immunodeficiency virus (HIV) is characterized by attacking the immune system, the infection caused by this virus leads to immunodeficiency . Currently, HIV is still considered a global health problem of large-scale dimensions . Data compiled by the Joint United Nations Program (UNAIDS) confirm at the end of 2021, 650 thousand people died of AIDS, 1.5 million who contracted the disease and 38.4 million living with HIV. The introduction of highly active antiretroviral therapy (HAART) is characterized by increasing the CD4+ cell count, decreasing HIV RNA levels, benefiting its course, and turning it into a manageable chronic disease, generating longer survival and contributing to better quality of life .

Periodontal disease (PD) includes a series of inflammatory-based conditions caused by a dysbiotic state of bacterial communities, developing infectious diseases that affect the bone structures that support the teeth . Periodontitis is considered a risk factor associated with systemic inflammatory responses as well as aging and premature mortality. Recent epidemiological data report that periodontitis in its mildest form affects 50% of the adult population . In its most severe stages, periodontal disease represents the sixth most common human disease, affecting 9.8% of the adult population . Previous studies reported that patients with a compromised immune system are at higher risk of developing more aggressive periodontitis.

Currently, the use of HAART acts directly on the host's immune system, favoring the management of the disease; however, it is important to note that the treatment does not eradicate the virus . Likewise, the use of HAART in the periodontal aspect refers to four mechanisms that are relevant: A. Limited chemotaxis of neutrophilic granulocytes in the initial phase of periodontal bacterial infection, B. Dysfunction of macrophages with CD4+ surface markers, in the following phase of the phagocyte, C. Disorganization of the activity of gingival B and T lymphocytes and their protective humoral products D. Direct toxicity of certain antiretrovirals on hematopoiesis .

Usually, the management of periodontal lesions in HIV- infected patients involves non- surgical treatment, surgical procedures and the coadministration of antimicrobial agents.

**Condition being studied:** Our study will analyze the effect of periodontal treatment in HIV+ patients and will evaluate changes in periodontal, immunological and microbiological parameters.

## METHODS

**Search strategy:** pubmed: ((((((((((adult periodontitis[MeSH Terms]) OR (periodontal therapy)) OR (Scaling and root planning)) OR (Non-surgical periodontal debridement)) OR (Surgical periodontal debridement)) OR (abscess, periodontal[MeSH Terms])) OR (debridement, periodontal pocket[MeSH Terms])) OR (gingival pocket[MeSH Terms])) OR (abscess, periodontal[MeSH Terms])) OR (aggressive periodontitis[MeSH Terms])) AND ((((((((((agents, anti hiv[MeSH Terms]) OR (HIV)) OR (antiretroviral therapy)) OR (antigens, human immune response[MeSH Terms])) OR (Human immunodeficiency virus)) OR (HAART)) OR (highly active antiretroviral therapy)) OR (aids[MeSH Terms])) OR (antigen, cd4[MeSH Terms])) OR (anti hiv drugs[MeSH Terms])) Cochrane: #1 adult periodontitis #2 periodontal therapy #3 Scaling and root planning #4 Non-surgical periodontal debridement#5 Surgical periodontal debridement#6 abscess periodontal#7 debridement, periodontal pocket#8 gingival pocket#9 abscess, periodontal#10 aggressive periodontitis, #11:#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10, #12 agents anti hiv #13 HIV #14 antiretroviral therapy #15 antigens human immune response #16 Human immunodeficiency virus#17 highly active antiretroviral therapy#18 aids #19 antigen cd4 #20 anti hiv drugs, #21: #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20, #22: #11 AND #21 Scielo: (periodontal therapy OR PERIODONTITIS ) AND (HIV OR HAART).

**Participant or population:** Patients HIV+.

**Intervention:** Surgical treatment, photodynamic therapy, antimicrobials, others.

**Comparator:** Non- surgical treatment.

**Study designs to be included:** cohort, randomized controlled clinical trials, controlled clinical trials , conducted only in human, published indifferent languages.

**Eligibility criteria:** **INCLUSION CRITERIA:** Studies published up to the year 2022. **EXCLUSION CRITERIA :** Animal studies ,studies conducted in adolescents, studies conducted in pregnant women, studies conducted in children

**Information sources:** MEDLINE (PubMed); Cochrane central register of controlled trials; SciELO - scientific electronic library online; Grey literature ( academic google ); Periodontal journals with impact factors(2020); Journal citation reports.

**Main outcome(s):** Periodontal outcomes: Plaque scores, bleeding on probing, periodontal pocket depth, clinical attachment levels.

**Additional outcome(s):** - HIV outcomes: -Count CD4+; -Microbiological analysis.

**Data management:** The following data are extracted in predefined Excel's spreadsheets by two authors and considering: Author, year, country, reporting of a priori sample size estimation, sample size, and including outcomes such as periodontal treatment, CD4 cell counts ,analysis microbiological, and periodontal parameters .

**Quality assessment / Risk of bias analysis:** The articles that meet the inclusion criteria will be subjected to a quality assessment with Risk of Bias for randomized clinical trials and the Newcastle–Ottawa Scale for cohort studies (NOS) .

**Strategy of data synthesis:** An analysis of heterogeneity will be performed, which was limited as a meta-analysis could not be

performed. Following the parameters established in Amstar II.

**Subgroup analysis:** Subgroup analysis will be performed to test for categorical and continuous covariates, respectively, and the significance will set at  $p < 0.05$ .

**Sensitivity analysis:** For the calculation of the summary association measurement we will try to development such a sensitivity analysis, . These analyzis would favor the identification of possible variables that influenced the final global association measurement.

**Language restriction:** Has no language restriction.

**Country(ies) involved:** Perú-Ecuador.

**Other relevant information:** None.

**Keywords:** Periodontitis; Gingivitis; CD4; HAART therapy.

**Contributions of each author:**

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