http://dx.doi.org/10.1590/1981-86372023001720210151

| ORIGINAL

Prevalence of periodontitis in young adults living with HIV/Aids using antiretroviral therapy

Prevalência da periodontite em adultos jovens vivendo com HIV/Aids em uso de terapia antirretroviral

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ABSTRACT

The therapeutic management, as well as the HIV virus itself, has been associated with alterations at the bone level, which may also have a relationship with the maxillomandibular alveolar processes and potential development of periodontal diseases, especially periodontitis. **Objective**: The objective of this study was to evaluate the periodontal health condition of young adults living with HIV/AIDS, through the measurement of the Periodontal Clinical Insertion Level (CAL) and to raise general data on the health conditions facing HIV and on the quality of life of this audience. **Methods**: Data were collected at a Reference Center for STI/AIDS in São Paulo - SP, Brazil. The method used was guided by previously validated indicators. In total, 31 individuals aged between 20 and 24 years, both genders and using TAAP were evaluated. For the analyses, the Excel Microsoft® software was used. **Results**: There was a prevalence of periodontitis in the assessed public of 45.17%. In view of the quality of life, the public was classified as "Regular" and no cases of Necrozing Periodontitis were observed, which is strongly associated with HIV infection. **Conclusion**: The evaluated public showed a high prevalence of periodontitis, which reinforces the importance of Dentistry in monitoring People Living with HIV/AIDS, in order to prevent the worsening of periodontal diseases.

Indexing terms: Antiretroviral therapy, highly active. HIV. Periodontal disease. Periodontitis.

RESUMO

O manejo terapêutico, bem como o próprio vírus do HIV tem sido associados à quadros de alterações em nível ósseo, podendo ter uma relação também com os processos alveolares maxilo-mandibulares e potencial desenvolvimento de quadros de doenças periodontais, em especial a periodontite. ***Objetivo****: O objetivo do trabalho foi avaliar a condição da saúde periodontal de indivíduos adultos jovens vivendo com HIV/AIDS, por meio da aferição do Nível de Inserção Clínica Periodontal e levantar dados gerais sobre as condições de saúde frente ao HIV e sobre a qualidade de vida desse público. Os dados foram coletados em um Centro de Referência em IST/AIDS de São Paulo – SP, Brasil.* ***Métodos****: O método empregado teve como guia norteadora indicadores previamente validados. No total, foram avaliados 31 indivíduos com idades entre 20 e 24 anos, ambos os gêneros e em uso da terapia antirretroviral. Para as análises foi utilizado o software Excel Microsoft®.* ***Resultados****: Foi observado uma prevalência de periodontite no público avaliado de 45,17%.*

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How to cite this article

Silva AC, Giovani EM. Prevalence of periodontitis in young adults living with HIV/Aids using antiretroviral therapy. RGO, Rev Gaúch Odontol. 2023;71:e20230017. http://dx.doi.org/10.1590/1981-86372023001720210151

Frente a qualidade de vida o público foi classificado como "Regular" e não foi observado quadros de Periodontite Necrozante, que está fortemente associado a infecção pelo HIV. ***Conclusão****: O público avaliado apresentou alta prevalência de periodontite, o que reforça a importância da Odontologia no acompanhamento das Pessoas Vivendo com HIV/Aids, no sentido de prevenir o agravamento dos quadros de doenças periodontais.*

Termos de indexação: *Terapia antirretroviral de alta atividade. HIV. Doenças periodontais. Periodontite.*

INTRODUCTION

With the advent of the Human Immunodeficiency Virus (HIV), until the present day, many advances have taken place. However, understanding the dynamics of this virus, as well as the action of drugs for therapeutic management, is still a challenge. The protocols of antiretroviral therapies used today have a high capacity to control viral action and thus provide better quality and longevity of life for HIV-positive individuals, considerably reducing the Acquired Immunodeficiency Syndrome (AIDS), which is also due to adherence to treatment [1].

Currently, people living with HIV/Aids (PLHIV/Aids) are offered an association of antiretroviral drugs called Highly Active Antiretroviral Therapy (HAART), with a very efficient dynamic for the control of viral load and maintenance of the immune system, constituting the use of Tenofovir Desoproxil Furamate (TDF), Lamivudine (3TC) and Dolutegravir (DTG) the initial protocol [2].

However, it is known that antiretroviral drugs can trigger unwanted side processes and interfere with treatment adherence, as well as with the functions of human systems. This behavior has been widely studied, since there is evidence of the interference of these drugs in many tissues, including bone [3-6].

In the context of this research, antiretroviral drugs, especially TDF, a drug that acts as an inhibitor of HIV-1 nucleotide reverse transcriptase, always being administered in association with other antiretroviral drugs, has been the target of being related to manifestations oral, including those involving periodontal tissues, in addition to systemically relating to other tissues, acting on the levels of Bone Mineral Density (BMD), which can cause a metabolic imbalance in mineralized tissues, promoting possible osteopenia and osteoporosis, which contributes to a greater chance of bone fractures [7]. In this perspective, there is the hypothesis of the influence of antiretroviral drugs, as well as the action of the HIV virus itself, also in the dynamics of maxillomandibular bone metabolism [8,9].

Therefore, a potential change in the bone structure of dental support could trigger periodontitis in a factor of the Periodontal Clinical Attachment Loss (CAL), in addition to conditions of Necrozant Periodontitis, which are associated with HIV in the presence of viral load levels detectable and low level CD4+ T Lymphocyte [9]. However, studies that assess these conditions are still limited.

Thus, the aim of the study was to investigate the prevalence of periodontitis in young adults living with HIV / AIDS and using TAAP, through a survey involving periodontal evaluation, in addition to collecting general data on HIV and Quality of Life, in order to new advantages on the relevant topic.

METHODS

The target audience of the research was captured in a Specialized Care Service in Sexually Transmitted Infections and AIDS in São Paulo - SP, Brazil, being evaluated 31 individuals in follow-up for the treatment of HIV, aged between 20 and 24 years.

For the investigation and classification of the presence or absence of periodontitis, the assessment of CAL was recommended as a diagnostic method, according to the criteria of the last consensus on the classification of periodontitis [9], with the individual being classified with the disease picture when CAL≥1mm in at least one of the periodontal areas inspected, the index teeth being evaluated number 16/17, 11, 26/27, 36/37, 31 and 46/47 (table 1).

Table 1. Classification of periodontitis based on severity and defined by stage [9].

	Stage I	Stage II	Stage III	Stage IV
Interdental CAL - Location of > loss	1 até 2 mm	3 até 4 mm	≥5 mm	≥5 mm
Bone loss at radiographic level	Coronary third (<15%)	Coronary third (15% to 33 %)	Extension to middle third of root and beyond	Extension to middle third of root and beyond
Dental loss	No tooth loss due to PD	No tooth loss due to PD	No tooth loss due to PD (≤4 tooth)	No tooth loss due to PD (≥5 tooth)

For periodontal probing, the Willians Millimeter Probe was used, considering the insertion limit to be the touch perception at the bottom of the sulcus, the Junctional Epithelium (JE), with the subsequent measurement of the probing depth in relation to the Amelocementary Junction (ACJ), having as references the Gingival Level (GL) plus the Probing Depth (PD). Six points were evaluated per index tooth, these areas being the Mesiobuccal, Centrobuccal, Distobuccal, Mesiolingual or Palatine, Centrolingual or Palatal and Distolingual or Palatal regions.

Regarding the general variables, data were collected on gender, sexual orientation, race/color, socioeconomic data, education, quality of life according to the World Health Organization's abbreviated quality of life assessment instrument, which classifies the group into five strata (Very Bad; Bad; Fair; Good; Very Good) [10] and information on HIV infection and follow-up status, namely: Time of use of HAART; Contagion Mode and Time; Viral Load and CD4+ T Lymphocyte Level. All data were collected using a standardized investigative questionnaire previously validated and carried out by a single examiner. For the tabulation of the results, the program Excel Microsoft® - USA was used. This methodology was approved by the Research Ethics Committee under opinion No. 3.319.800/PMSP and No. 3.231.201/ UNIP and is in accordance with the Resolution No. 466/12 of the National Health Council - Ministry of Health - Brazil, with the Free and Informed Consent Term signed by all participants.

RESULTS

Thirty-one PLHIV/Aids were evaluated, aged between 20 and 24 years old, with a mean age of 22.45 years old (SD = 1.38), both genders, 24 men (77.41%) and 7 women (22.59 %), since 16 (51.61%) of these reported, in relation to sexual orientation, being homosexual (MSM: Man who has sex with a man), 9 (29.03%) heterosexual and 6 (19.36%) bisexuals, of which 3 (9,68%) were women and 3 men (9,68%) (table 2). Faced with color, 16 (51.61%) declared themselves white, 13 (41.93%) brown and 2 (6.46%) black.

Table 2. Sex versus sexual orientation.

Sex versus Sexual Orientation	Total	MSM	HET	BIS
Masculine	24 (77.41%)	16 (51.61%)	5 (16.12%)	3 (9.68%)
Feminine	7 (22.59%)	-	4 (12.9%)	3 (9.68%)

Faced with the classification of periodontitis, the analyzes showed that 17 (54.83%) individuals did not present with the disease and 14 (45.17%) did, and of these, 9 (64.28%) were classified as stage 1 and 5 (35.72%), in stage 2, and no other stage was observed, as well as a picture of Necrozing Periodontitis, which is intrinsically associated with HIV contamination (table 3).

Considering the general data on HIV/AIDS, 11 (35.48%) had vertical contamination and 20 (64.52%) sexual (table 4), and at the time of investigation 25 (80.65%) had no detectable viral load in the last laboratory exam and 6 (19.35%) yes, and it was also observed that 27 (87.09%) had CD4+ T lymphocytes ≥ 350 cell/mm^3 and 4 (12.91%) CD4+

T lymphocytes < 350 cell/mm^3. In the evaluation of the last complementary exam performed by the individual, it can be observed that 29 (93.54%) did not present alterations in relation to the levels of the laboratory pattern and 2 (6.46%) did, these being related to the level of TGO/TGP and Urea.

Table 3. Presence or absence of periodontitis and level of severity.

Presence of periodontitis	Total	Stage 1	Stage 2
Absence	17 (54,83%)	-	-
Present	14 (45,17%)	9 (64,28%)	5 (35,72%)

Table 4. Route of contamination by HIV.

Route of contamination by HIV	Total
Vertical	11 (35.48%)
Sexual	20 (64.52%)

Regarding the use of HAART, all the individuals evaluated were in regular use, with a mean time of use of 9.46 years (SD = 4.74).

The observed data on socioeconomic conditions and education showed that 22 (70.96%) had a job and 9 (29.04%) did not, with an average monthly income of R$1,691.93, in relation to the degree of schooling, 7 (22.58%) completed elementary school I, 3 (9.67%) completed elementary school II, 11 (35.48%) completed high school and 1 (3.23%) incomplete, 8 (25.80%) higher education and 1 (3.23%) incomplete higher education. Regarding quality of life, the evaluated group was classified as "Regular".

DISCUSSION

Given the prevalence of periodontitis, the literature exposes age as an aggravating factor for this condition, which is characterized as a systemic factor for its development [11,12]. However, in the evaluated public, there was an important prevalence of periodontitis in a young public. Another important point is due to the fact that no picture of Necrozing Periodontitis was observed, which is related to detectable viral load and T lymphocyte CD4+ level <200cel/mm3, which can be explained by the control of therapeutic management against HIV [9].

The proposal to evaluate young adults, aged between 20 and 24 years, helps to control potential biases, which filters the results for a more effective association and also in the suppression of other factors related to long-term periodontitis, such as hygiene precarious mouth, inadequate toothbrushing, irregular chewing efforts and chronic parafunctional habits.

Regarding the general variables, the male gender was predominant, with one (ratio of 3.4). According to data from the Ministry of Health of Brazil, referring to HIV/AIDS, the ratio between gender represents a rate of 2.45 (8,434 men and 3,442 women), which highlights men as the target audience for HIV. Another important observation refers to the sexual orientation variable, in which 51.61% of the male public declared themselves homosexual (MSM), however, according to data from HIV/AIDS indicators in Brazil, in a historical series between 1980 and 2020, there was no prevalence discrepancy between homosexuals and heterosexuals, which showed a crude ratio between the mentioned years of 0.97, that is, a greater number of infected heterosexuals in relation to the MSM public, which shows us that the stigma of a greater number of male homosexuals infected does not apply against epidemiological data or denotes

reported information that does not match the true sexual orientation. Sexual transmission of HIV represented the main route of contagion, which corroborates data from the Ministry of Health – Brazil [13].

Regarding quality of life, the assessed group was classified as "Regular", which shows weakness in terms of physical, psychological, social and environmental aspects. over time, opening up the possibility of a recovery of acceptance of being a PLHIV/Aids [14].

Special monitoring of this public is necessary, not only from the point of view of the use of HAART, but also at other levels of care, which reinforces multidisciplinary actions in public health that also aim at breaking paradigms in relation to prejudice, family acceptance and, consequently, improved quality of life and the reduction of stigma and discrimination, supported by the Stigma Index, which until 2019, had the participation of more than 100 countries and more than 100,000 people assisted and which reflects important changes facing the global scenario of HIV/AIDS [15].

The effectiveness of the use of HAART could be explained by the high percentage of individuals with undetected viral load (80.65%) and CD4+ T lymphocytes > 350 cells/mm3 (87.09%). In addition, it is necessary to discuss about HAART, which, according to the Clinical Protocol and Therapeutic Guidelines, started to have as its first line, as of 2017, the DTG, the TDF and the 3TC, the last two being mentioned, covered in a single pill (protocol "2 in 1") and seen as an important placement for viral suppression and better acceptance of HAART by PLHIV/AIDS, in addition, the recommendation to start HAART from diagnosis, can also be seen as an important strategy for minimizing adversities related to HIV/AIDS [16,17]. However, despite the benefits, there are important side associations with the use of HAART, with special attention to bone tissue, strengthening the importance of preventive management of oral diseases, which includes the maintenance of periodontal health.

Therefore, it is understood that health processes are involved in a pluralized universe, which enhances the emergence of opportunistic diseases in the case of HIV carriers, as well as other diseases, in which the diversity of variables can influence the individual's health , which generates a broad discussion and not only focused on the underlying disease itself, with the periodontium having a great participation in this line, as it represents an anatomical area strongly linked to systemic health and which reinforces the demystification of dental care in the face of PLHIV/AIDS [18-21].

CONCLUSION

Given the above, this research explored a condensed public of the age group of PLHIV/AIDS, which is difficult to access, with variables inserted in a universe of many gaps to be filled, which reinforces the motivation for the continuation of more intrinsic investigations on the theme.

The evaluated public showed a high prevalence of periodontitis conditions, which reinforces the importance of Dentistry in the monitoring of PLHIV/AIDS, in order to prevent the worsening of periodontal diseases, as well as to collaborate in improving self-esteem and quality of life, for through dental care, facing a public that still lives in a situation of vulnerability, both physically, socially and emotionally.

Collaborators

AC Silva, main researcher, creator of the study and responsible for recruiting patients, organizing data, analyzing results and writing the article. ÉM Giovani, research advisor and responsible for the study's ethical issues. He acted as a collaborator in the construction of the results and analysis of the variables.

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Received on: 7/1/2022
Final version resubmitted on: 23/5/2022
Approved on: 27/10/2022

Assistant editor: Fabiana Mantovani Gomes França