

The health profile and prevalent diseases of female patients with HIV/aids treated at the center for studies and care for special patients at a school clinic

Abstract

Objective: To establish the profile of health and prevalent diseases and relate them to the oral health conditions of female patients with HIV/AIDS treated in the last 10 years at the Centro de Estudos e Atendimento a Pacientes Especiais - CEAPE/UNIP.

Methodology: epidemiological, observational descriptive and cross-sectional study of female patients with HIV/AIDS aged 30 years or more treated at CEAPE - UNIP, during the period from Jan. 1, 2011 to Jan. 1, 2021. The instrument used for data collection was the dental record, specifically the document used to perform the anamnesis at the first consultation of the HIV/AIDS patient.

Result: 40 medical records of HIV/AIDS patients were analyzed, the mean age was 49.1 years (SD±7.7), 52.5% were non-white and 48.7% had completed high school.

Conclusion: most patients with HIV/AIDS have a plaque index - PI considered bad and localized and generalized gingivitis. Health promotion actions that mitigate diseases of the oral cavity are fundamental for these patients and thus reduce the need for curative interventions that are sometimes difficult to perform and cannot always be performed in the outpatient clinic, requiring referral to the operating room and use of general anesthesia.

Keywords: HIV/AIDS, oral health, health's integrality

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Abbreviations: CFO, federal council of dentistry; PNE, patients with special needs; SD, standard deviation, CV, coefficient of variation; PI, plaque index; GBI, gingival bleeding index; DS, dental surgeon; SNPs, patients with special needs; IDU, injecting drug users; SUS, Unified Health System; UBS, basic health unit

Introduction

Health is a fundamental right guaranteed in Brazil's Federal Constitution, which is understood as complete physical, mental and social well-being, and it is the state's duty to provide individuals with quality of life. The World Health Organization - WHO, in its International Convention on the Rights of Persons with Disabilities, states that they have the right to enjoy the highest standard of health without discrimination. It is therefore up to the state to guarantee these people access to health services.¹ In Brazil, the Federal Constitution, promulgated in 1988, dedicated several provisions to disabled people, specifically art. 23, item II, determines that the Union, States, Federal District and Municipalities provide them with health care, protection and guarantee of rights.²

At the II National Assembly of Dental Specialization, which took place from 6 to 9 September 2001 in Manaus, Amazonas, organized by the Federal Council of Dentistry (CFO), a proposal was presented setting out the concept and classification of patients with special needs in dentistry. With regard to the concept, patients with special needs are those who "require differentiated care because they have mental, physical, organic, social and/or behavioral alterations".³ For this reason, the Specialty in Dentistry for Patients with Special Needs has been recognized since 2001 by the Federal Council of Dentistry - CFO, "covers individuals with intellectual and physical disabilities, congenital anomalies, behavioral disorders, psychiatric disorders,

sensory and communication disorders, chronic systemic diseases, infectious diseases and systemic conditions".¹

According to the scientific literature, HIV/AIDS patients have a high incidence of caries and periodontal disease, with bacterial plaque being the main "etiologic agent".¹ The accumulation of biofilm and bacterial heterogeneity is what leads to the appearance of periodontal disease, which leads to gingival inflammation and consequent bleeding. Inflammation and infection, if left untreated, spread from the gingival tissue to the periodontal ligament and supporting bone, causing tooth mobility and thus periodontitis.⁴ This situation is exacerbated when the patient's socio-economic conditions are detrimental: low income and low schooling, a high degree of dependence on the patient to carry out activities of daily living, little or no provision of dental services close to the community where they live, whether preventive or not.^{5,6}

The plaque control record is based on the presence of plaque on the mesial, distal, buccal and lingual surfaces of all the patient's teeth. By dividing the number of surfaces containing plaque by the total number of surfaces examined, the plaque index - PI - is obtained. According to a study by Soares, a plaque index of less than 25% is considered good, between 25% and 40%, fair and poor if it is above 40%.⁷ With regard to gingival bleeding, using the OMS probe, the DS assesses the presence or absence of marginal bleeding at four sites, mesial, distal, buccal and lingual, of all the patient's teeth, including implants. A gingival bleeding index-GBI of less than 10% is defined as the absence of gingivitis, when the percentage of sites is between 10 and 30%, it is classified as localized gingivitis, or generalized when the index is greater than 30%.⁸

The focus of dental treatment for a PNE patient should be preventive and oral health control, rather than curative treatment,

which is sometimes difficult to perform and cannot always be carried out in an outpatient clinic, requiring referral to a surgical center and general anesthesia. The specialty of Dentistry for Patients with Special Needs (PNE) was recognized in 2001. The educational institutions that have this specialization in their curricula offer their students the chance to see patients with special needs in outpatient clinics run by them, either to gain practice or for research purposes. The service is generally outpatient and in some cases also inpatient.⁹

Universidade Paulista - UNIP has a Center for the Study and Care of Special Patients - CEAPE, which prepares students from their final year of undergraduate studies to postgraduate courses, “producing scientific knowledge, as well as breaking down fears, prejudices and stigmas regarding the care of these patients. Patients with HIV/AIDS, syndromic and systemic diseases and other pathologies are treated, promoting health and improving the quality of life of people with special needs”.⁹

Given the complexity of these patients, there is a consensus among researchers and DCs who treat SNPs that a multidisciplinary approach is necessary in oral health care.^{3,10,11} The nursing professional can contribute to more efficient and humanized dental care for SNP’s patients by understanding their needs and difficulties through an analysis of the medical records of patients seen at the CEAPE/UNIP dental service and, in this way, support the activities of the DS. The aim of this study is to establish the health profile and prevalent diseases and relate them to the oral health conditions of female HIV/AIDS patients. To this end, data will be collected from dental records.

Methodology

This is an epidemiological, descriptive observational and cross-sectional study of female HIV/AIDS patients aged 30 and over treated at CEAPE - UNIP, from January 1, 2011 to January 1, 2021. The instrument used for data collection was the dental records of CEAP - UNIP, specifically the document used to carry out the anamnesis during the first consultation of the patient with HIV/AIDS, from January 1, 2011 to January 1, 2021, and at the time of the first anamnesis, she was 30 years old or older. The variables were: race, schooling, use of continuous medication, date of diagnosis, exposure category, symptoms (night sweats, diarrhea, fatigue, myalgia, weight loss, etc.), history of opportunistic diseases, information on T-CD4 lymphocytes and viral load.

For all patients, the PI and GBI verified by the DS were also checked in the medical records. The inclusion criteria were adult patients (aged between 30 and 59.9) and elderly patients (aged 60 or over) at the time of their first consultation.

Exclusion criteria: Medical records with incomplete and/or illegible data. The medical records in the permanent and current archives of CEAP/UNIP were analyzed. The results of the non-parametric data analyzed are expressed descriptively and presented in tables. The Kruskal-Wallis and Mann-Whitney tests were used to compare the medians of PI and GBI values according to sociodemographic and clinical variables.

Results

Forty medical records of female HIV/AIDS patients were analyzed, the average age was 49.1 years (SD±7.7), ranging from 31 to 65 years old, 21 (52.5%) were non-white and 19 (48.7%) had completed high school. The most prevalent form of infection is sexual, with 38 (97.4%) cases. The majority of patients, 27 (75.0%), have an undetectable viral load and 30 (85.7%) of them have a level of T-CD4

lymphocytes ≥ 200 cells/mm³. With regard to PI, 25 (62.5%) rated it as poor (PI>40%) and with regard to GBI, 18 (56.3%) had generalized gingivitis (GBI>30%) Table 1.

Table 1 Patients’ sociodemographic and clinical characteristics

Features	n	%
Age (in years) (n=40)		
30-39	5	12,5
40-49	16	40,0
50-59	16	40,0
≥60	3	7,5
Total	40	100,0
No information	0	
Race (n=40)		
White	19	47,5
Not White	21	52,5
Total	40	100,0
No information	0	
Schooling (n=39)		
Middle school	16	41,0
High school	19	48,7
University	4	10,3
Total	39	100,0
No information	1	
Exposure category (n=39)		
Sexual	38	97,4
IDU	0	0,0
Blood/derivatives transfusion	0	0,0
Other	0	0,0
Ignored	1	2,6
Total	39	100,0
No information	1	
Undetectable	27	75,0
Detectable	9	25,0
Total	36	100,0
No information	4	
T-CD4+ (in cells/mm³) (n=35)		
≥200	30	85,7
<200	5	14,3
Total	35	100,0
No information	5	
Features		
PI (n=40)		
Good up to <25%	8	20,0
Regular 25% to 40%	7	17,5
Bad >40%	25	62,5
Total	40	100,0
No information	0	
GBI (n=32)		
Absence of gingivitis <10%	5	15,6
Localized gingivitis 10% to 30%	9	28,1
Generalized gingivitis > 30%	18	56,3
Total	32	100,0
No information	8	

Table 2 shows the distribution of the mean, median, standard deviation (SD), coefficient of variation (CV) of PI and the Kruskal-Wallis and Mann-Whitney tests, according to the other variables, and Table 3 shows a similar analysis for GBI. Looking at the results in Table 2, the median PI was higher for patients over 60 years of age (mean 71.5% and median 73.0%), white women (mean 50.3% and median 55.0%) and those with a lower level of education (mean 69.6% and median 77.8%). As for clinical characteristics, in the category of

exposure to the virus, the median PI value for the only patient who was not sexually infected was higher (mean and median of 90.0%). The median PI value of patients with detectable viral load is higher than that of patients with undetectable viral load (mean 77.9% and median 87.9%). The median PI value was also significantly higher for patients with T-CD4 <200 cells/mm³ (mean 85.0% and median 100%). As for ISG, the median PI values for localized and generalized gingivitis are the same, 53.8%.

Table 2 Distribution in mean, median, standard deviation (SD) and coefficient of variation (CV) of PI, according to race, age group, schooling, route of transmission, viral load, CD4 and GBI

Features	n	PI				p
		Average	Median	DP	CV	
Age (in years) (n=40)						0,613*
30-39	5	46,8	35,8	27,6	59%	
40-49	16	54,1	58,0	30,8	57%	
50-60	16	51,4	50,0	32,0	62%	
> 60	3	71,5	73,0	11,0	15%	
Race (n=40)						0,630**
White	19	50,3	55,0	30,7	61%	
Not White	21	56,2	50,0	29,0	52%	
Schooling (n=39)						0,015*
Middle school	16	69,6	77,8	30,0	43%	
High school	19	46,3	52,1	24,4	53%	
University	4	31,1	33,7	22,2	71%	
Exposure category (n=39)						0,308**
Sexual	38	52,4	52,7	29,8	57%	
Non-sexual	1	90	90	-	-	
Viral Load (n=36)						0,002**
Undetectable	27	43,8	46,0	27,1	62%	
Detectable	9	77,9	87,9	23,6	30%	
T-CD4+ (in cells/mm³) (n=35)						0,010**
≥200	30	48,3	51,0	28,0	58%	
<200	5	85,0	100,0	21,3	22,2	
GBI (n=32)						0,661*
Absence of gingivitis <10%	5	42,7	17,4	40,9	96%	
Localized gingivitis 10% to 30%	9	54,8	53,3	30,1	55%	
Generalized gingivitis > 30%	18	55,8	53,3	27,4	49%	

*Kruskal-Wallis
** Mann-Whitney

The median GBI value was higher for patients aged between 50 and 60 (mean of 52.9% and median of 58.0%), white (mean of 44.5% and median of 44.4%) and with higher education (mean of 39.3% and median of 55.0%) Table 3. As for the clinical variables, the median GBI value was higher for the only patient whose mode of infection

was not sexual (mean 58.0% and median 58.0%), for patients with a detectable viral load (mean 60.8% and median 58.0%) and T-CD4 less than 200 cells/mm³ (mean 50.6% and median 54.5%). Patients with a PI considered to be poor also had a higher median ISG value (mean 45.0% and median 52.4%).

Table 3 Distribution in mean, median, standard deviation (SD) and coefficient of variation (CV) of the GBI, according to race, age group, schooling, route of transmission, viral load, CD4 and PI

Features	GBI					p
	n	Average	Median	DP	CV	
Age (in years) (n=40)						0,675*
30-39	5	34,7	34,7	26,9	78%	
40-49	16	35,0	22,9	30,2	86%	
50-60	16	52,9	58,0	22,9	43%	
> 60	3	14,8	14,8	16,9	114%	
Race (n=40)						0,502**
White	19	44,5	44,4	32,1	72%	
Not White	21	37,9	32,1	23,9	63%	
Schooling (n=39)						0,728*
Middle school	16	36,4	34,5	23,7	65%	
High school	19	45,0	41,6	30,8	68%	
University	4	39,3	55,0	34,2	87%	
Exposure category (n=39)						0,645**
Sexual	38	39,8	33,3	28,3	71%	
Non-sexual	1	58,0	58,0	-	-	
Viral Load (n=36)						0,078**
Undetectable	27	36,2	30,4	27,1	75%	
Detectable	9	60,8	58,0	27,1	45%	
T-CD4+(in cells/mm³) (n=35)						0,622**
≥200	30	40,2	34,5	29,9	74%	
<200	5	50,6	54,5	29,1	58%	
PI (n=40)						0,255*
Good up to <25%	8	23,7	13,4	31,6	133%	
Regular 25% to 40%	7	44,6	38,7	30,6	69%	
Bad >40%	25	45,0	52,4	25,1	56%	

*Kruskal-Wallis
** Mann-Whitney

When comparing the PI and GBI results, based on the median value, it can be seen that the characteristics in common between these two indices which have higher values are: white women who were infected through non-sexual means, with a detectable viral load and T-CD4 <200 in cells/mm³. The analysis of the sample also shows that patients with high PI have a high median value for GIS and that women with a GIS above 10% also have higher PI values. As for PI, the Kruskal-Wallis test showed that there was a significant difference between PI and level of education (p=0.015). The Mann-Whitney test showed a significant difference between PI and viral load (p=0.002) and quantity of T-CD4 (p=0.010). The tests revealed no relationship between PI and the other variables, as the results were higher than the established significance level of 5%. With regard to the GBI, no significant difference was found between its medians related to the categories of socioeconomic and clinical variables.

Discussion

In Brazil, the first report of AIDS was in 1980 in the state of São Paulo. Since then, the characteristics of the epidemic in Brazil and around the world have changed. Currently, it is not restricted to men who have sex with men, there has been an increase in cases among women and the main form of infection is still sexual,¹² which is the predominant form of infection in the sample in this study.

Initially, the level of education of those infected was high, but today it involves people with a lower level of education. According to the Bulletin,¹² looking at the female group from 1980 to June 2021, 42.2% of cases occurred among women who had not completed elementary school and 8.8% among women with secondary education. The education level of the women in this study's sample is higher than that of the Bulletin: 48.7% have secondary education and 41% have

primary education. These patients in the sample were tested for HIV from 2008 onwards, so it can be inferred that they were infected close to the date of the test, which is consistent with the Bulletin,¹² which reports that schooling has increased over the years. Analyzing the profile of infected women from 2010 onwards in the Bulletin¹² (there is no detailed information for 2008 and 2009), it can be seen that there was a shift in the number of cases from women who had not completed elementary school to those who had completed secondary school. There was an 8.4% reduction in cases of infection among women who had not completed elementary school and, on the other hand, an 8.8% increase in cases among women who had completed secondary school. This percentage of 17.6% is still far from the representativeness of this study's sample, which is 48.7%, so it's worth remembering that the information on the sample's schooling is from when the patient was interviewed and not from when she was infected, and the patient may have continued her studies after infection, but in any case, it is significant socio-economic data. These data, both from the sample and from the Bulletin,¹² confirm the pauperization of the national profile of the disease that occurred a decade after the first cases were reported in Brazil in the 80s.^{3,13}

In the Ministry of Health's survey¹² for the female group, non-white women predominated in the number of AIDS cases in Brazil from 2010 to June 2021, with 62.3% of those infected. In the survey under analysis here, 52.5% of the patients are non-white, a lower proportion than in the Bulletin, but it reinforces the information that AIDS cases are prevalent in non-white women and that they affect a less economically privileged part of the population.

Since the free distribution of antiretrovirals in Brazil, viral load has been controlled, and there is a statistically significant association between the use of antiretrovirals and undetectable viral load.¹³ In the sample analyzed, most of the patients had an undetectable viral load (75.0%), probably due to antiretroviral use. According to research by Trevisol,¹³ there is no statistically significant difference between antiretroviral use and T-CD4 levels, but the correct use of antiretrovirals should re-establish higher plasma levels of T-CD4. Again, the probable use of antiretrovirals by the majority of patients in the sample means that a considerable proportion (85.7%) have T-CD4 levels equal to or greater than 200 cells/mm³. This value is a reference, since most oral lesions are related to a level of T-CD4 lymphocytes below 200 in cel./mm³.¹⁴ On the other hand, Gonçalves et al. concluded in their study that lower levels of TCD-4 are not associated with the prevalence of periodontal disease in patients using antiretroviral therapy.¹⁵

The PI of the sample was poor for 62.5% of the patients (PI>40%). According to various studies, there is an association between the growing accumulation of bacterial plaque and poor socio-economic conditions, whether due to financial difficulties in changing toothbrushes, buying dental floss and toothpaste, or not knowing about the need for oral hygiene or how to do it properly.^{5,6} In this study, the median PI value was significantly higher for patients with primary schooling, and therefore low schooling (mean of 9.6%, median of 7.8% and p=0.015, confirming what the literature on the subject says. Most of the patients had generalized gingivitis (56.3%), reinforcing the relationship between socioeconomic status and oral conditions.¹⁶

When the relationship between PI and T-CD4 level was analyzed, it was observed that the median PI value was higher for patients with lymphocytes <200 cells/mm³ (mean 85.0%, median 100.0% and p=0.010), confirming studies that indicate this same association. With regard to viral load, the central measurement values were higher for detectable viral load and the Mann-Whitney test indicated that there

was a significant relationship between viral load and PI (mean 77.9%, median 87.9% and p=0.002). As for the analysis of the ISG medians in relation to the socio-economic variables, this was different from the same done for PI and from what the literature shows, since the relationship between socio-economic conditions and ISG is not very significant (schooling: p=0.728; and race: p=0.502). The results of the statistical tests showed no relationship between GBI and T-CD4 level and viral load (p=0.622 and p=0.078, respectively), contrary to what the literature indicates, since HIV-infected people have a greater predisposition to periodontal diseases and GBI is one of the indicators of the presence of these diseases. However, it may be that the use of antiretroviral therapy by all patients, even those with lower levels of TCD-4, reduces the prevalence of GBI, as presented by Gonçalves et al.¹⁵ The relationship between GBI and PI, established by the Kruskal-Wallis test, is not significant (p=0.255), although, according to the literature, the higher the PI, the higher the GBI since bacterial plaque is a relevant etiological factor for the onset of periodontal disease, one of its prerequisites being gingivitis.¹⁶

Conclusion

Most HIV/AIDS patients have a PI considered poor and gingivitis considered generalized, even though a significant majority of them have T-CD4≥ 200 cells/mm³ and an undetectable viral load. HIV/AIDS patients with a low level of education, T-CD4<200 cells/mm³ and detectable viral load have higher PI. No relationship was observed between GBI and level of education, T-CD4 and viral load, as verified for PI. Although the non-parametric tests do not indicate a relationship between GBI and PI, the centrality measures do, indicating that mitigating the proliferation of bacterial plaque reduces the possibility of developing periodontal disease.

The Ministry of Health's oral health policy, whose gateway to the Unified Health System - SUS is the basic health unit - UBS, should reinforce health promotion actions that protect individuals from diseases of the oral cavity, as well as other problems: healthy eating, self-care with oral hygiene, elimination of smoking, among others, especially for HIV/AIDS patients. These preventive actions are fundamental for these patients and thus reduce the need for curative interventions, which are sometimes difficult to perform and cannot always be carried out at the outpatient clinic, requiring referral to a surgical center and the use of general anesthesia.

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Conflicts of interest

The authors declares that there is no conflict of interest.

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