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# Oral Status of People Living with HIV on Antiretroviral Treatment in the Urban Area of Abidjan, Côte d'Ivoire

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| Abstract | | Original Research Article |
|---|---|---|

The oral cavity is the medium of prediction of the onset of the first pathologies in people living with HIV/AIDS (PHAs). These pathologies are known as HIV/AIDS markers. According to various authors, they persist despite antiretroviral (ARV) treatment (ART). The objective of this study was to assess the oral status of PHAs on ARVs in order to contribute to their management. It has identified several oral pathologies including HIV/AIDS marker pathologies. It shows that these marker pathologies are present at a rate of 58% in patients on ARVs. The most persistent are gingival linear erythema and oral candidiasis. It is therefore essential to include dentistry practitioners in the multidisciplinary PHA management team in order to improve the quality of life of these patients.
**Keywords:** Oral condition, PHAs, antiretroviral treatment.

# INTRODUCTION

Several opportunistic lesions may occur in People Living with Human Immunodeficiency Virus (PHA). Among these opportunistic lesions, those of the oral sphere are the first to occur [1]. They are considered by the World Health Organization (WHO) as markers of the Human Immunodeficiency Virus (HIV). These include oral hair leukoplakia, oral candidiasis, linear erythematous gingivitis, ulceronecrotic gingivitis, ulceronecrotic periodontitis, Kaposi sarcoma and non-Hodgkin's lymphoma. These oral lesions are sometimes painful, bloody, and cause halitosis with negative repercussions on the quality of life of these subjects. So they are disabling.

In 2015, the Ivorian state adopted a directive allowing the systematic use of antiretroviral (ARV) treatment (ART) for PHAs to keep them healthy longer and to significantly reduce transmission of the virus [2]. Today, the effectiveness of these ARV treatments is unanimously recognized by the scientific community [3-5]. These treatments contribute significantly to improving the overall health status of PHAs [6]. Does this beneficial effect of ARVs have an impact on oral pathologies and specifically on HIV/AIDS marker pathologies of the oral cavity? In other words, what is the oral status of PHAs on ARVs? The present study proposes to answer these questions.

# MATERIALS AND METHODS

## Study Population

The study population consisted of PHA living with ARVs and was part of the PHA labour force. This population is supported in the urban community-based health training (FSUCOM) of Anounambo Marcory and Yopougon red roof of the urban area of Abidjan, Côte d'Ivoire. The study took place from January to September 2019.

## Type of Study and Inclusion Criteria

This is a cross-sectional, descriptive study. The topics included in the study were gender neutral. These were PHAs of at least 15 years old, enrolled in a follow-up chain that included regular management, the distribution of ARVs and often nutritional so-called active line of PHA. In addition, we sought and obtained informed consent from all subjects of the study.

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*Criteria for Non-Inclusion*
Subjects who refused to participate in our study and those who did not accept the odontostomatological clinical observation were not included in the study.

*Odontostomatological Clinical Examination and Data Collection Materials*
The clinical dental examination of the subjects was carried out with:
- A pair of gloves.
- A mirror.
- A precell.
- A dental probe.

The data collection material consisted of a data collection sheet and an observation booklet.

The data collection sheet was populated from the "patient records" of PHA on ARVs from the two inclusion centers. Data on socio-demographic characteristics and ARVs were collected.

The Workbook data were developed from the clinical odontostomatological examination of the study subjects. Information on PHA oral conditions was collected.

The variable gingival index according to LÖE [7] was used. All teeth are examined on all vestibular, lingual and mesial surfaces. The average of the observations indicates the overall patient status using the following score:
1. No inflammation.
2. Discrete inflammation, few changes in shape and color.
3. Marked inflammation, redness, edema and gingival hypertrophy with bleeding caused.
4. Significant inflammation, redness, accentuated hypertrophy with tendency spontaneous hemorrhagic and ulceration.

The CAD index variable was calculated per individual for decayed, absent and filled teeth. It was obtained by summing the number of decayed permanent teeth, absent (due to decay) and filled [8].

*Statistical Analysis*
The data collected were processed and analyzed using computer software to conduct statistical analysis. A description of all variables in the study population was completed. The qualitative variables were described in terms of numbers and percentages.

## RESULTS
The population of this study is composed of 150 subjects, of which 77.3% are women and 22.7% are men. Patients under 40 accounted for 52.7%. (Table I). The distribution of subjects by year of initiation of ARV shows that the extreme numbers were recorded in 2010 with 4 cases and in 2014 with 29 cases (Figure 1).

One hundred and twenty-one subjects (80.7%) had a CAD index greater than or equal to 5 and 62% had a gingival index greater than or equal to 2 (Table II). One hundred and twelve marker pathologies were counted in 87 (58%) subjects. Among these marker pathologies, linear gingival erythema and oral candidiasis represented 35.3 and 20.7% respectively (Figure 2).

**Table I: Demographic characteristics of the population**

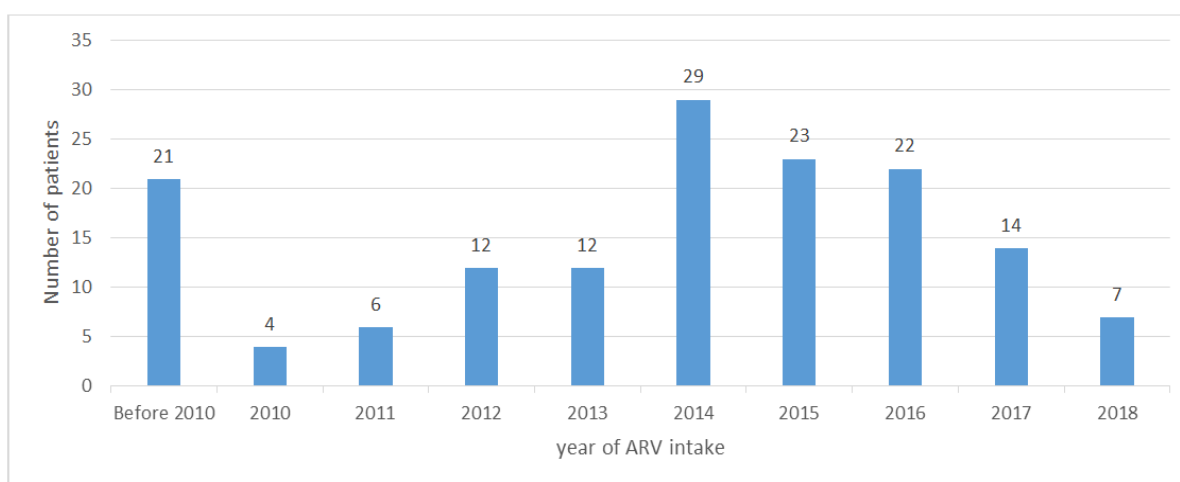| Variables | Numbers and percentages |
|---|---|
| **Gender** | |
| Female | 116 (77.3%) |
| Male | 34 (22.7%) |
| **Age group** (in Year) | |
| [15-39] | 79 (52.7%) |
| [40-59] | 62 (41.3%) |
| ≥60 | 09 (06.0%) |



**Figure 1: Distribution of subjects by year of ARV intake**

**Table II: Oral Characteristics of PHAs on ARVs**

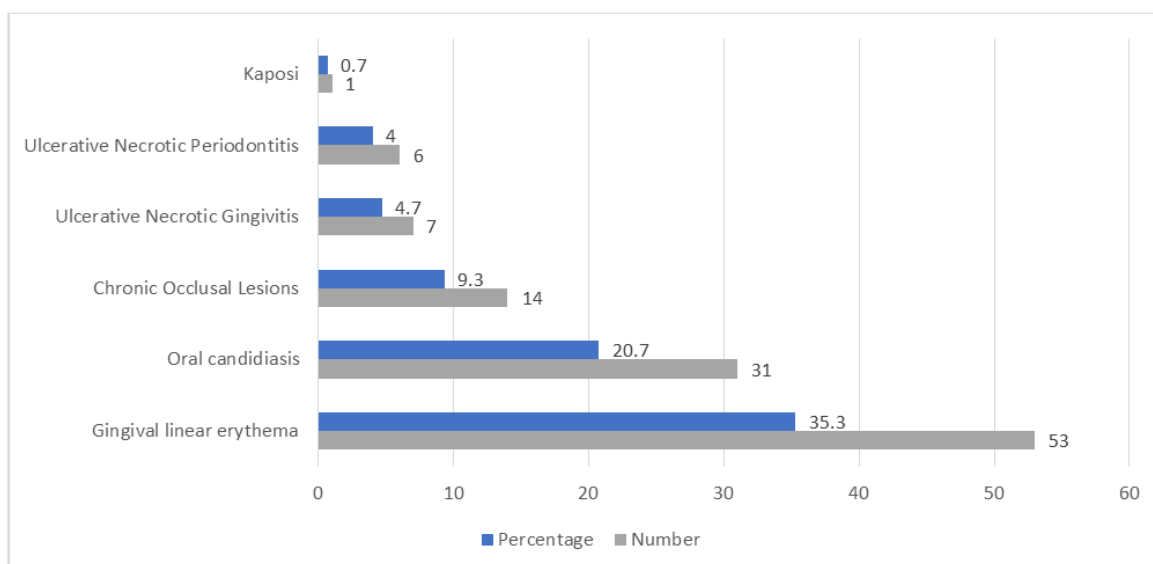| Variables | Numbers and percentages |
|---|---|
| **Simplified Oral Hygiene Index (OHIS)** | |
| No tartaric deposit | 05 (03.3%) |
| Cervical 1/3 deposit | 31 (20.7%) |
| Cervical 2/3 deposit | 56 (37.3%) |
| 3/3 cervical deposit | 58 (38.7%) |
| **Gingival index** | |
| 0 | 14 (09.3%) |
| 1 | 31 (20.7%) |
| 2 | 77 (51.3%) |
| 3 | 16 (10.7%) |
| **CAD Index** | |
| 0 | 29 (19.3%) |
| 5 | 71 (47.2%) |
| 6 | 50 (33.5%) |
| **Presence of oral marker pathologies** | |
| Yes | 87 (58%) |
| No | 63 (42%) |



**Figure 2: Distribution of subjects according to marker pathologies.**

## DISCUSSION

There were more women than men. This could be explained by the fact that the female gender would be more vulnerable to HIV contamination biologically than the male gender [9]. In addition, systematic screening of women during prenatal examinations should be noted [10]. Our results are similar to those mentioned by M'BENTO [11] and TETMOUN [12] who objected to 66.7% and 65.6% of women in the study respectively. In this study, the majority of subjects are young with a rate of 52.7%. Young people are the most affected by the disease. This finding could be explained by the high frequency and precocity of sexual intercourse in this segment of the population. These results are similar to those of BAMBA, which showed that the age groups most affected by the HIV epidemic are those between 18 and 27 and 28 and 37, with 27.4% and 45.7% respectively [13].

All subjects included in the study had been on ARVs for at least one year (Figure 1). The major advantage of ARVs in the management of PHAs is that they prevent the development and maturation of the virus in the body.

This blocking action of the virus has the effect of regenerating immune cells and improving the overall health status [10]. We noted this improvement on the one hand, in the "patient record" of subjects with a decrease in viral load and on the other hand, with the assertion by these same subjects, of a perceptible improvement in their general health.

The oral hygiene of our subjects was not of good quality and therefore exposes them to the conditions of appearance or proliferation of oral pathologies with 62% of the subjects who had a gingival index greater than 2, and more than 80% a

CAD index greater than 5. Most subjects had HIV/AIDS marker pathologies of the oral cavity. Almost the entire variety of these pathologies was represented. Gingival linear erythema and oral candidiasis were the most common in these PHAs with rates of 35.3% and 20.7% respectively. Despite the administration of ARVs for more than a year, we find that HIV/AIDS marker pathologies of the oral cavity are present. Improving the overall condition of ART subjects would therefore not have the expected beneficial effect on HIV/AIDS marker pathologies of the oral cavity. Indeed, the work done by TCHEGNAN [14] shows the persistence of several oral lesions despite taking ARVs. ALONSO shows that ARV treatment reduces the prevalence of acute periodontal lesions but is unable to stabilize periodontal disease and chronic periodontitis [9]. All these authors are unanimous in recognizing the importance of combining oral management with ARV treatments. This confirms the importance of oral management in the management of PHA.

## CONCLUSION

ART significantly improves the overall health status of HIV-infected individuals. However, their impact on oral health appears limited. An involvement of odontologists in the multidisciplinary team of management and follow-up of these patients is essential. It will undoubtedly help to prevent, cure or limit the progression of pathologies of the oral sphere, in this case HIV/AIDS marker pathologies of the oral cavity, for a better quality of life of these patients.

## CONFLICT OF INTEREST

Authors declare that they have no conflict of interest.

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