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ORIGINAL ARTICLE

Oral manifestations of HIV/AIDS in clients attending TASO clinics in Uganda

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Abstract The objective of the study is to establish the prevalence of oral manifestations and their influence on oral functions. A total of 514 subjects aged 18 to 58 years (mean 42 years) were randomly recruited from five The AIDS Support Organization (TASO) clinics in Uganda. They were clinically examined for oral lesions under field conditions by four trained dentists based on World Health Organization criteria. Women constituted 74.5% of the study population. Oral manifestations were recorded in 72% of the subjects, out of which 70% had candidiasis of pseudomembranous, erythematous, and angular cheilitis variants. Non-Hodgkin's lymphoma, atypical ulcers, necrotizing periodontitis, and hairy leucoplakia were least frequently observed in the subjects. Of those who had oral lesions (n=370), 68.4% had some form of discomfort in the mouth. Tooth brushing, chewing, and swallowing were frequently associated with discomfort. Reported forms of discomfort were dry mouth, increased salivation, and burning sensation especially on taking salty and spicy foods or acidic drinks. Only 8.5% (n=44) of the subjects were taking medications specifically for oral lesions, which included antifungal, antiviral, and antibacterial agents. None of the subjects were on antiretroviral therapy. Oral lesions associated with human immunodeficiency virus/acquired immunodeficiency syndrome in TASO clients is a major public health problem requiring education in recognition and appropriate management.

Keywords Oral manifestations · HIV/AIDS · TASO clients · Uganda

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Introduction

Inasmuch as the prevalence of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) in Uganda has reduced from 30% in 1987 to 6.2% by 2002 [23], it is still high. In 2004, Uganda had an estimate of 1.3 million people living with HIV/AIDS of which 20,000 were receiving antiretroviral (ARV) therapy. Some of the earliest clinical features of AIDS are oral lesions. The health worker needs to suspect the possibility of HIV infection in the patient with oral manifestations of opportunistic infections suggestive of immunosuppression [1]. The manifestations can be used to detect decreased $CD4^+$ cell count [13] and increased blood viral load [18]. They are of special value in diagnosis, progression, and prognosis of the disease [3, 9]. However, after the introduction of ARV therapy, the prevalence rates of oral manifestations associated with HIV/AIDS have tremendously decreased (e.g., [6, 8, 17]). The prevalence of oral lesions varies from region to region and this has been documented in continental Africa (e.g., [2, 5, 12, 16]) with the biggest burden of the disease. In Uganda, only one study limited to an isolated commu-

nity has been carried out [15]. The aim of the study was to clinically assess the pattern of oral manifestations and their influence on oral function in HIV/AIDS clients attending different TASO clinics in Uganda.

Material and methods

Areas of study

This was a cross-sectional study conducted between September and December 2004 in 5 of 8 The AIDS Support Organization (TASO) clinics. TASO is a nongovernmental organization established 17 years ago in Uganda to assist people to live positively with HIV. It supports clients of all age groups through free counseling (5 days a week), provision of medical care (3 days a week), and food distribution (once a month). A limited number of clients are provided with ARV therapy. The clinics selected for this study were located in Kampala, Masaka, Mbarara, Jinja, and Mbale municipalities, which fairly represented different regions of Uganda.

Selection of study subjects

In 2004, TASO was supporting about 30,000 registered HIV/AIDS clients (TASO administration, personal communication). Study subjects (clients) were recruited on the basis of having registered in the TASO clinic within the previous month, aged 18 years or more, and consented. On average, each TASO clinic registers 35 clients per week. The subjects were randomly selected in the clinics using numbers: Jinja (n=107), Kampala (n=104), Masaka (n=101), Mbale (n=104), and Mbarara (n=98). Women constituted 75% of the study population.

Calibration of examiners

Before the main field survey, four trained dentists were calibrated in oral examination of randomly selected subjects (n=30) in Mbarara TASO clinic in order to minimize interexaminer variability. They were requested to record oral lesions. The mean interexaminer consistences in recording the lesions were found to be 95% for pseudomembranous candidiasis, 93% for erythematous candidiasis, 98% for angular cheilitis, and 92% for necrotizing gingivitis. The frequency of recording other lesions in the sample was too low to have any meaningful analysis.

Ethical considerations

Permission to carry out the study was obtained from the Uganda National Council of Science and Technology, Uganda AIDS Research Committee and TASO administration. Informed consent was sought from the study subjects in accordance with Helsinki Declaration [25]. The nature and purpose of the study was explained to the subjects in their respective local languages and only those who consented were recruited. They were assured of confidentiality. In consultation with the medical staff at the clinic, advice was given to the clients regarding management of oral lesions that were observed during the study.

Clinical examination

Four trained dentists who were previously calibrated carried out the clinical examinations under field conditions based on World Health Organization (WHO) criteria [24]. The examination was done in a room with the subject seated on an office chair resting the head on a cushion facing a wide open window while the examiner was seated in front of the subject. Sunlight was the source of illumination. The dentists worked in pairs. One dentist physically examined the subject using a disposable mouth mirror, tongue depressor, a pair of tweezers, and cotton wool, then dictated the observations to another one who recorded them on a WHO-recommended form [24]. To avoid fatigue, the dentists exchanged their roles after examining every ten subjects. The record forms were counter-checked for errors and completeness after each day's fieldwork.

Reproducibility test

Blind duplicate examination in ten patients in each of the five TASO clinics 2 days after the main examination for reproducibility test gave a substantial agreement. Cohen's kappa values ranged from 0.82 to 0.85. There was no evidence of systematic error found in both examiners ($p>$ 0.05, Wilcoxon test).

Data analysis

Data were entered into a computer and analyzed using Epi-Info software, version 3.2. Frequency distributions were used to describe the material. Wilcoxon signed-ranks test for paired observations was used to assess any significant intraexaminer differences in recording oral lesions. The probability level was set at 5%.

Results

The mean age of the subjects was 42 (range 18–58) years (Table 1). Age range of 30–49 years constituted 68.9% of the study sample. Majority of the subjects were Africans of Bantu origin. About 85.4% of the subjects reported

Table 1 Distribution of age, gender, ethnicity, mode of HIV infection (n=514), and discomfort in the mouth of the subject (n=370)

Description	Number of subjects	Percent
Age (years)		
18–29	96	18.7
30–39	215	41.8
40–49	136	26.5
50–58	67	13.0
Gender		
Male	131	24.5
Female	383	75.5
Ethnicity		
Bantu	446	86.8
Nile hamites	53	10.3
Nilotes	13	2.5
Others	2	0.3
Mode of HIV infection		
Heterosexual	439	85.4
Mother to child	2	0.4
Unknown	73	14.2
Oral lesion present		
Yes	370	72
No	144	28
Discomfort in the mouth (n=370)		
Yes	253	68.4
No	117	31.6
Causes of discomfort in the mouth[a] (n=370)		
Tooth brushing	253	68.4
Swallowing	133	35.9
Speaking	15	4.1
Chewing	147	39.7
Drinking	57	15.4

[a] Individual subjects had discomfort due to different oral functions.

heterosexual contact as their route of HIV infection (Table 1). Oral manifestations were recorded in 72% of the subjects (Table 1) of which 70% had candidiasis (Table 2). Pseudomembranous, erythematous, and angular cheilitis were the variants of oral candidiasis recorded in the subjects. Non-Hodgkin's lymphoma, atypical ulcers, necrotizing periodontitis, and hairy leucoplakia were least frequently observed in the subjects (Table 2). Some of the subjects had different lesions. Of those who had oral lesions (n=370), 68.4% had discomfort during oral function. Tooth brushing, chewing, and swallowing were frequently associated with discomfort (Table 1). Reported forms of discomfort were dry mouth, increased salivation, and burning sensation especially on taking salty and spicy foods or acidic drinks.

About 94.1% (n=481) of the subjects were taking medications for various ailments associated with HIV infection. Only 8.5% (n=44) of the subjects were taking medications specifically for oral lesions, which included antifungal, antiviral, and antibacterial agents. None of the subjects were on ARV therapy.

Table 2 Distribution of oral manifestations in the subjects (n=370)

Description	Number of subjects	Percent
Candidiasis	259	70.0
Pseudomembranous	151	40.8
Erythematous	144	38.9
Angular cheilitis	65	17.6
Erythematous gingival banding	29	7.8
Necrotizing gingivitis	41	11.1
Kaposi's sarcoma	16	4.3
Recurrent aphthous ulceration	45	12.2
Recurrent herpes labialis	21	5.7
Non-Hodgkin's lymphoma	2	0.5
Atypical ulcers	5	1.4
Necrotizing periodontitis	1	0.3
Hairy leucoplakia	1	0.3
Nonspecific lesions	2	0.5

Some subjects had more than one oral manifestation.

Discussion

This study was conducted in HIV-positive clients who had started attending TASO clinics within the previous one month. The 1-month period was selected to minimize inclusion of clients who may have been started on ARV therapy. Clients in TASO are routinely started on ARV therapy on "first come, first served" basis usually after several months due to limited supply of drugs, unless one's health condition demands immediate regime of ARV therapy (TASO administration, personal communication). ARV therapy is reported to decrease the occurrence of oral manifestations [6, 8, 17]. It is on this background that subjects who were on ARV therapy were excluded from this study. It would otherwise be recommended to carry out a follow-up study to assess the influence of ARV therapy on oral lesions in this particular population.

The majority of the subjects were Africans of Bantu origin (Table 1), which is explained by the fact that the areas from which the study sample was drawn are mainly inhabited by the ethnic group. About 75% of the subjects were women (Table 1). This suggests that the proportion of women who seek health services in TASO clinics is larger compared to their male counterparts. Tipping and Segall [21] demonstrated that the decision to engage with a particular medical channel in developing countries is influenced by a variety of socioeconomic variables such as sex, age, the social status of women, and the type of illness.

In this study, the prevalence of subjects with oral lesions was 72%, which contrasts with a much lower value of 42% (n=89) in a previous study in HIV-positive Ugandans [15]. More than two third of the subjects with oral lesions complained of some form of discomfort in the mouth (Table 2). The discomfort due to oral lesions may translate into poor health-related

quality of life [7] and debilitation [4] because of its negative impact on nutrition through difficulty in chewing, drinking (Table 2), or taking salty food. On the other hand, about 32% of the subjects who had oral lesions denied any symptoms associated with oral function (Table 1), which is an indicator of the magnitude of the lesions that go unattended.

The majority of the oral lesions recorded in this study were candidiasis predominantly, of pseudomembranous, erythematous, and angular cheilitis variants (Table 2). This finding corroborates other reports in Africa, e.g., in Kenya [5], Zaire [22], South Africa [2], and Zimbabwe [12]. Moreover, a review of reports on oral lesions in African populations indicates that the prevalence of candidiasis ranges from 1.5 to 94% [10], suggestive of further studies to elucidate on factors associated with this wide frequency of distribution.

Atypical ulcers, hairy leucoplakia, and nonspecific lesions were least observed in this study, similar to a previous one in a Ugandan population [15]. This was in contrast to reports from other continents, e.g., India [19] where, for instance, hairy leucoplakia was recorded in up to 16% of 101 HIV-infected subjects. The explanation for this observation in these populations is beyond the scope of the present study.

It is important to note that almost all the subjects in this study were taking medications for general ailments associated with HIV. However, only 8.5% were taking drugs for oral lesions probably due to the high cost attached to their pharmacotherapy [11] or the limited attention attached to oral lesions. This finding compares with 9.1% of 1,424 adult American AIDS patients who sought treatment for oral manifestations [14].

The study has shown that oral lesions associated with HIV/AIDS in TASO clients is a major public health problem requiring training in recognition and early appropriate management. Management should follow recommended protocols [20].

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