Nigerian Journal of Surgical Research
Vol 7 No ,1-2,2005: 176 - 181

Original Article

Oral manifestations of Hiv/Aids infection in Nigerian patients seen in Kano

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A b s t r a c t

Objective: To determine the pattern and prevalence of oral lesions in HIV-infected Nigerian patients seen in a referral centre.
Design: Prospective hospital based study
Setting: Aminu Kano Teaching Hospital, Kano-a tertiary health institution servicing the entire north-western Nigeria.
Subjects: 205 HIV infected individuals who consented to participate in the study
Method: All patients were interviewed and examined by at least two Dental Surgeons trained in diagnosis of oral manifestations of HIV. Data were captured on adapted WHO recording form for oral lesions associated with HIV, transferred and analyzed using MINITAB12.21 (U.S.A)
Results: The age range was18-61 years (mean=33.7, S.D =8.0).The M: F =1.2:1; There was statistically significant difference (t=8.1,DF=201, P-value = 0.001) between mean age for males (37.3; S.D.=7.8years) and females (29.5; SD=5.9 years). Overall, 140 (68.3%) patients had at least one oral lesion. Most common lesion was candidosis (60.5%) and the pseudomembranous (45.4%) type was most frequent. Other lesions were HIV gingivitis (27.8%), hairy leukoplakia (14.2%), aphthous ulcer (9.8%), Kaposi's sarcoma (8.3%), melanin hyper-pigmentations (7.3%), herpes simplex infection (5.4%), HIV periodontitis(4.9%), parotid enlargement (1.9%) and HIV-NOMA (0.5%). The mean CD4 counts were 301, 268 and 289 for those without oral lesion, with single lesion and multiple oral lesions respectively. These differences were not statistically significant (ANOVA F=0.36 DF=2 P=0.7).
Conclusion: Oral lesions are frequently seen in HIV-infected Nigerian patients and the pattern of occurrence is not markedly different from those reported from other African countries.

I N T R O D U C T I O N

The Human Immunodeficiency Virus infection is a global epidemic which is spreading rapidly in Africa with little or no effective control measures in place to contain it. According to a World Health Organization's report [1,] the HIV infection is the 4[th]most common cause of death in the developing world and about 70% of the global HIV infected persons reside in Africa. In a recent sero-prevalence epidemiological survey [2], the HIV infection prevalence rate was estimated to be 5.8% amongst Nigerians indicating an increase from the previous rate of 4.5% in 1995 and 3.8% in 1993 [3,4.]The oral cavity is like a mirror which reflects the state of health of

the body since most systemic diseases usually manifest early in the oral tissues. Some oral lesions have been observed to be more rampant in HIV infected patients than healthy individuals and sometimes may be the first indication of the disease [5,6].Furthermore, the appearance of some of these lesions in an HIV infected patient may signal the deterioration of the disease [7]. Health workers in general and oral healthcare givers in particular should have an adequate knowledge of the common oral manifestations of HIV infection and how to manage them. Published reports of oral presentations of HIV infection are mostly from the developed countries while few reports emanating from Africa are from South and East Africa [8-13]. There is a dearth of information on the prevalence of oral lesions in HIV patients from the West African sub- region [14].The aim of this study, therefore, is to determine the pattern and frequency of oral lesions associated with HIV infection in our environment in order to contribute to the existing data on oral HIV lesions in the West African sub-region. It will also compare findings with published reports from other parts of Africa and the developed World.

Patients and Methods

Patients attending the Aminu Kano Teaching Hospital (AKTH) medical specialist out-patient clinic and diagnosed with HIV infection between May 2002 and June 2003 were the subjects of this study. In addition, patients referred from screening centres around Kano metropolis and who were confirmed as sero-positive in AKTH within the same period were included. The Hospital Ethical Committee's approval was sought and obtained. An informed consent was obtained from each participant after a counseling session and those who did not want to participate were dropped. HIV sero-positive status was determined by a repeatedly reactive sample on ELISA screening in addition to a positive confirmatory test by Western Immunoblot. Examination of the orofacial tissues for each patient was performed by at least 2 dental surgeons pre-trained in oral manifestations of HIV/AIDS. Data was captured on an adapted WHO recording form for oral HIV/AIDS. Statistical analysis of data was carried out using MINITAB 12.21(U.S.A) statistical software package. Mean, standard deviation, range and percentages were used to describe quantitative and qualitative data respectively. Microsoft Excel and Word in Windows 98 were used for graphics and tables. The student t test and ANOVA were used to test for significant differences in means of various groups. A P-value of less than 0.05 was considered significant

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Results.

Socio-demographic characteristics. Out of the 205 HIV positive patients examined, there were 112 (54.6%) males and 93 (45.4%) females giving a sex ratio of 1.2:1. Their ages ranged from 18 to 61 years with an overall mean age of 33.7 years (S.D= 8.0 years). Majority (76.6%) were in the 3rd and 4th decades with the peak prevalence in the latter. Taken separately, the ages for males ranged from 18 to 61 years with a mean and standard deviation of 37.3 and 7.8 years respectively. The age range for females was from 19 to 46 years with a mean of 29.5 and a standard deviation of 5.9 years (Table 1). There was a statistically significant difference in the mean age of males and females (t = 8.1, DF =201, P-value = 0.001)Seventy nine (38.5%) of the patients had secondary school education, 74 (36.1%) had tertiary education, 21 (10.2%) had primary school education while the rest had no formal education.Majority 104 (50.7%) were Hausas, followed by Igbos 38 (18.5%), Idoma 10 (4.9%) Igalas 8 (3.4%), and Yorubas 8(3.9). Most of the patients were either Muslims 122 (59.5%) or Christians 83 (40.5%). Majority of the patients 132 (64.4%) were married, 48 (23.4%) were single and 23 (11.2%) were divorced. Oral Manifestations Oral manifestations of HIV were found in 140 out of 205 (68.3%) patients and majority (124/205 or 60.5%) of the patients had candidal infection. The commonest type of candidosis in our patients was pseudomembranous candidosis seen in 93 (45.4%), followed by angular cheilitis in 72 (35.1%) and erythematous candidosis in 26 (12.7%). There was no hyper-plastic variety seen in any of the patients. Other less commonly seen lesions were HIV- gingivitis in 57 (27.8%), hairy leukoplakia in 29 (14.2%),aphthous ulcer in 20 (9.8%), Kaposi's sarcoma in 17 (8.3%) oral hyper - pigmentation in15 (7.3%), herpes simplex infection in 11(5.4%) and HIV- periodontitis in 10 (4.9%) patients. Rarely seen lesions included parotid enlargement, molluscum contagiosum, papilloma, palatal petechial haemorrhages and HIV- Noma (Table 2). We did not see any HIV-associated cases of Cytomegaloviral or Herpes Zoster infections, lymphomas or carcinomas. Multiple lesions were seen in 107 (52.2%) of the patients. The CD4 counts of the patients, which was available in182 (88.8%) of the patients were as shown in Table 3. Patients with one or more oral lesions had lower mean CD4 counts (Mean of 268 and 289 respectively) compared to a mean count of 301 for those without oral lesions. These differences were however, not statistical significant at level 5% .post hoc comparisons and Bonferonni correction for multiple comparisons, F=0.36 DF=2 P=0.7, No Lesion versus a single t=0. 54 p> 0.5,No Lesion versus single lesion t=0.54 P>0.05, No lesion versus multiple lesion P>0.05,. t=0.85

Table 1. Some demographic characteristics of 205 HIV positive Nigerian patients in Kano, Nigeria, 2003

Characteristic	Frequency
Gender	
Males	112 (54.6)
Females	93 (45.4)
Sex ratio	1.2:1
Age (All)	
Range	18-61years
Mean±SD	33.7±8.0 years
Age (Males)	
Range	18-61years
Mean±SD	37.3±7.8years
Age (Females)	
Range	19-46 years
Mean±SD	29.5±5.9 years

Table 3. The $CD4^+$ counts in 182 HIV- infected patients seen in Kano, Nigeria

CD 4 count	frequency/%
>500	17 (9.4)
200-500	102 (56.0)
<200	63 (34.6)
Total	**182* (100.0)**

* CD4 counts not available

Table 2. Prevalence of Oral Lesions in 205 HIV-infected Nigerian patients in Kano, Nigeria, 2003

Types	Frequency*
1. Pseudomembranous Candidiasis	93 (45.4)
2. Angular Cheilitis	72 (35.1)
3. Erythematous Candidiasis	26 (12.7)
1-3. Combined Candidal lesions	**191 (93.2)**
4. HIV Gingivitis	57 (27.8)
5. HIV Periodontitis	10 (4.9)
6. HIV Noma	1 (0.5)
4-6. Combined gingival/periodontal lesions	**68 (33.2)**
7. Aphthous (recurrent oral) ulcerations	20 (9.8)
8. Leukoplakia	29 (14.2)
9. Kaposi's Sarcoma	17 (8.3)
10. Melanotic hyper-pigmentation	15 (7.3)
11. Herpes infections	11 (5.4)
12. Parotid enlargement	4 (1.9)
13. Oral Papilloma	2 (0.9)
14. Molluscum contagiosum	2 (0.9)
15. Palatal petechiae	2 (0.9)

***Note: Multiple lesions**

D i s c u s s i o n

As far as we can establish, this is the first study that determined the prevalence of oral lesions in HIV infection in the north- western part of Nigeria. The age characteristics of HIV infected patients in this study agree with previous studies from Nigeria [14] and other parts of Africa [12, 13.] It has been consistently shown that HIV infection affects mostly young and active age groups and majority are within the 3rd and 4th decades of life as confirmed by the findings of this present study. The almost equal sex prevalence rate (Male to Female ratio of 1.2:1 could be readily explained by the dominant role of heterosexual transmission in our society as earlier reported [15, 16.] We also suggest that the statistically significant difference in mean age between males and females could be partly due to the same reason and this being reinforced further by the fact that older men date or marry younger women When the educational status was considered, we found that majority of our patient were educated as about 75% had at least secondary education or more. This is not surprising since the setting of the study is in an urban area. However, the implication is that the awareness campaign against the spread of the disease might have not been initiated in time to benefit this group or has not been adequately assimilated and therefore ineffective in reducing the rate of infection in the educated class. his study showed that some oral lesions are commonly associated with HIV infection and this is consistent with previous studies [8, 12, 17-19.] There is marked

disparity in the reported prevalence rate of oral lesions in HIV infected Africans. While a rate as low as 15.6% (20) was reported in a group of Kenyan commercial sex workers, a rate as high as 92% [12]was reported in100 Zimbabwean HIV patients. The rate of 68.3% from this present study is comparable to 60.4% [13] reported in a group of South African patients although it is higher than 48.8% [14] from a similar study from Southern part of Nigeria. Suggested factors for this disparity include duration of sero-positivity, nutritional status, sexual orientation and practices and, maybe, immunological state of the patients [13.]Candidosis has been consistently found to be the most common oral lesion usually associated with HIV/AIDS.[6,7,10,11,14,21] Arendorf et al., [13] observed that oral candidosis may develop in one-third to one-half of seropositive patients. It is commonly the first recognized oral manifestation and sometimes the only initial clinical sign of the infection [8,22.] Its appearance could also indicate an increased risk of progression to AIDS [23,24]. The overall prevalence rate of 60.5% for oral candidosis found in this present study is higher than 37.8% [13], 12.1% [19,] 22% [12,] from South African, Taiwanese and Zimbabwean patients respectively. It is however lower than 80% [14] in a recent study from southern Nigeria. Our finding that the pseudomembranous type was the most frequent agrees with most previous reports [6, 7, 13, 14,.] The presence of HIV infection is also associated with increased incidence of gingival/periodontal diseases which accounted for 33.2% of oral lesions in the present study. This is comparable to those reported from previous studies from Nigeria (14) and other countries [17, 18.] Some reports show that it can be as low as 6.8 % [19] and as high as 70% [25.] However, gingival/periodontal lesions are usually the second most frequently seen in HIV patients in our environment [14.]Oral hairy leukoplakia (OHL) is reported as one of the most common HIV-associated lesions [19, 26.] The frequent association of OHL with HIV infection and its rare occurrence in healthy individuals makes it a good marker of the disease. In addition, it is of prognostic value because it has been shown to be a predictor of poor prognosis as progression to full blown AIDS is more likely with it occurrence [24, 27.] OHL appears to be less frequently seen in Nigerian Africans with HIV. For example, OHL accounted for 10.7% in the present study which is higher though not markedly different from 5.0% [14] previously reported from southern Nigeria. Jonsson et al., [12] reporting on Zimbabweans recorded no single case of OHL. A prevalence rate of 19.7% [13] reported in HIV-infected South Africans is similar to 15.6% [27] from a study from Germany. Chiang [19] also reported a rate of 29.5% from Taiwan. The reason for the variability in frequency of OHL among different groups of HIV patients needs further investigation. Reported prevalence rates of recurrent aphthous ulcerations in HIV-infected patients from previous studies(8-[14] vary greatly partly due to the fact that researchers sometimes group oral ulcerations together without differentiating or categorizing them into their various types or variants. The present study's rate of 15% falls within the wide range of 4% - 26% in the literature [8,12,14,18,19,28].HIV-infected patients have been reported to have a higher risk of developing some malignancies. The most frequently associated malignancies are Kaposi's sarcoma and Lymphomas 5-7. The prevalence rate of Kaposi (8.3%) in this study is nearer 11.9% [14] reported from southern Nigeria but slightly high when compared with rates of 1.5% [13] and 1% [19] from South Africa and Taiwan respectively. A rate as high as 72% was reported in 100 HIV-infected Zimbabweans[12.] We did not record any lymphoma or other malignancies in this study apart from Kaposi's sarcoma.In conclusion, although the pattern of oral lesions associated with HIV infection the population studied was not markedly different from those reported in the literature, the prevalence of each type of lesion differ slightly. More epidemiological studies are needed to establish the true incidence of these lesions in HIV infected patients compared with non –infected individuals. It is also essential to train and re-train Dental Surgeons and other oral health workers so as to increase their index of suspicion of the infection with the appearance of these HIV associated oral lesions in patients. Finally, health awareness campaign should be stepped up to minimize the spread of this infection especially amongst the young and educated class.

A C K N O W L E D G E M E N T S

This study was partly supported by a Grant from the University of Ibadan College of Medicine's Centre for HIV/AIDS Intervention, Nigeria (CEHAIN).We appreciate the cooperation of the Management and the Heads of Department of Medicine and Pathology of Aminu Kano Teaching Hospital, Kano, Nigeria.We are also grateful to all our patients who participated in this study and the HIV laboratory staff of AKTH, for the laboratory investiagtions

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