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SOWOLE, C. A.; ORENUGA, O. O.; NAIDOO, S.

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Access to Oral Health Care and Treatment Needs of HIV Positive Paediatric Patients

Acesso aos Serviços de Saúde Bucal e Necessidade de Tratamento de Pacientes Infantis HIV Positivos

C. A. SOWOLE¹, O. O. ORENUGA¹, S. NAIDOO²

¹Department of Child Dental Health, College of Medicine, University of Lagos, Lagos, Nigeria.

²Department of Community Dentistry, Faculty of Dentistry, University of the Western Cape, Private Bag X1, Tygerberg.

RESUMO

Objetivo: Avaliar as manifestações orais, o estado de saúde bucal e as necessidades de tratamento de pacientes infantis com HIV.

Método: Trata-se de um estudo descritivo de 55 pacientes atendidos na clínica infantil do Hospital Escola da Universidade de Lagos. Um questionário pré-testado foi utilizado para determinar o status de saúde oral e as necessidades de tratamento.

Resultados: Vinte e nove crianças eram meninos (52,7%) e 26 (47,3%) eram meninas. A idade variou de 6 meses a 16 anos. Mais de dois terços [69,1%] das crianças possuíam uma boa higiene oral. Catorze crianças (25,5%) tinham gengivite, enquanto 17 apresentavam lesões de cárie dentária (30,9%). A lesão mais comumente encontrada foi a candidíase. A maioria dos pacientes poderiam se beneficiar de orientação de saúde bucal. Entretanto, mais de um terço, 38,2% necessitavam de tratamento restaurador.

Conclusão: Odontopediatras devem contribuir com os demais profissionais de saúde para o efetivo manejo destes pacientes.

ABSTRACT

Objective: An assessment of the oral manifestations, oral health status and treatment needs of paediatric patients with HIV infection.

Method: This is a descriptive study of 55 patients presenting at the special paediatric clinic of the Lagos University Teaching Hospital. A pre-tested questionnaire was used to determine oral health status and treatment needs.

Results: Fifty five children made up of 29 (52.7%) males and 26 (47.3%) females were examined. Age range was 6 months to 16 years. Over two-thirds (69.1%) of the children had good oral hygiene. Fourteen (25.5%) had gingivitis. Dental caries was seen in about a third, 17 (30.9%). The most common mucosal lesion was candidiasis. Most of the patient would benefit from oral health counseling. However over a third, 38.2% would require restorative treatment.

Conclusion: Paediatric dentists should collaborate with health professionals for effective management of these patients.

DESCRITORES

HIV; Saúde bucal; Manifestações bucais.

KEYWORDS

HIV; Oral health; Oral manifestations.

INTRODUCTION

Immune defects in children whether caused by primary immunodeficiency, immunodeficiency virus infection or immunosuppressive therapy has been shown to have profound effects on the oral tissues¹. Oral lesions, especially oral candidiasis, may frequently be the initial presenting signs of HIV infection². An understanding of manifestations of oral disease is becoming increasingly important³. Oral examination is simple and non-invasive and some oral manifestations may be used to enhance early detection of HIV infection in vulnerable populations, elucidate progression of the disease and predict immune status, so that early intervention can be provided³⁻⁸. The source and route of transmission in paediatric HIV infection is multifactorial. However, in women of child-bearing age, the heterosexual route constitutes the main source of HIV infection.

The world has never seen a comparably complex public health situation as that which it is currently experiencing in dealing with the effects of the HIV/AIDS pandemic in children⁹. The impact of AIDS on children is not limited to their increasing rates of infection, but also to the fact that in ten years time, over 40 million children are expected to be orphaned as a result of AIDS⁹. HIV/AIDS was first reported in Nigeria in 1986¹⁰. Since then, the epidemic has been growing rapidly. In 2002 alone, more than 200,000 AIDS-related deaths occurred, and it was estimated that Nigeria's infection rate is lower than those of neighboring countries¹¹. It nonetheless represents higher number of infections, given the large population. The country now has the highest number of HIV/AIDS-infected adults in West-Africa¹¹.

The continuing worldwide epidemic in adults has led to an increase in the number of HIV-positive children, infected mainly through the perinatal route³. Therapeutic advances in management have resulted in decreased mortality, and attention is now focused on improving the quality of life through reduction of morbidity⁴.

Although various clinical aspects of paediatric HIV infection have been documented in African countries, there is a dearth of information on access to oral health care, oral health status and dentition treatment needs. There is an urgent need for information on the oral health care and needs of paediatric patients with HIV infection. This information will provide baseline data and also be relevant in the formulation and implementation of appropriate management of the oral needs and improved access to oral healthcare for these patients.

MATERIALS AND METODS

The present study is a descriptive investigation carried out at the paediatric out-patient clinic of the Lagos University Teaching Hospital (LUTH), Nigeria, a foremost tertiary institution providing medical and dental services, as well as providing the training of different cadres of health care personnel. All paediatric patients attending the special paediatric clinics of the LUTH were eligible for the study. Ethical approval was obtained for the study. Informed consent was obtained from the parents, caregiver or guardians of the patients. Subjects were assigned a numerical code in order of participation in the study. No record was kept of the link between numerical code and patient identity, thus maintaining confidentiality. A convenience sample was used.

Upon study entry, socio-demographic data was obtained. This included age, gender, and tribe while relevant medical data was extracted from the hospital records. This included past and current illnesses, hospitalization and medication. Information was recorded in an interviewer administered questionnaire. Only children confirmed to be HIV positive from results of Elisa tests were recruited into the study.

All subjects were examined both extra-orally and intra-orally. Oral examination included the soft tissues and treatment needs. The classification for presumptive diagnostic criteria for oral mucosal lesions was based on the recommendation by the collaborative workgroup on oral manifestations of Paediatric HIV infection, Oral AIDS centre, University of California, San Francisco¹².

Examination was performed by two of the authours (OOO and CAS) in a consulting room under natural light, with the children sitting on an ordinary chair or the mother's lap. Sterile dental mirrors and periodontal probes were used. Both examiners were previously calibrated.

The data was entered, edited and analyzed using the Epi-Info 2002 statistical software for windows. Frequency distribution tables were generated for categorical variables, means and standard deviation were determined for these variables. Data was validated by examining frequency tables generated. Level of significance was placed at $p \leq 0.05$.

RESULTS

A total of 55 patients were seen during the study period. There were 29 (52.7%) males and 26(47.3%) females giving a male to female ratio of 1:0.9. The age of the children ranged from 6 months to 16 years with a mean of 4.37 years (+/- 3.47). The age at the eruption of

first tooth ranged from 3 months to 12 months, with a mean of 6.4+/- 2.8 (Table 1).

Table 1. Distribution of children studied by age, sex and time of eruption of first tooth.

Characteristic	Variable	Frequency	%
Age			
Range	6 months-16 years		
Mean	4.4. years		
S.d	3.47		
Sex	Male	29	52.7
	Female	26	47.3
Age at eruption of first tooth			
Range	3-12 months		
Mean	6.4+/-2.8		
First tooth not yet erupted		4	7.3

Over two thirds 38(69.1%) of the children had good oral hygiene, while 9 (16.4%) and 8 (14.5%) had fair and poor oral hygiene respectively (Table 2).

Tooth cleaning was done once daily in over three quarters, 47(85.5%) of the children and twice daily in only 6(10.9%) children. Two (3.6%) practiced tooth cleaning thrice daily. About two-thirds 44(79.1%) of the children had started brushing their own teeth. Only one of these children had a previous visit to the dentist. Just less than 10% reported having commenced tooth brushing on eruption of first tooth (Table 2).

Table 2. Oral health practices and Oral Health Status of the children.

Characteristics	Variable	Frequency	%
Frequency of tooth cleaning	Once	47	85.5
	Bedtime	6	10.9
Toothbrush use	Age started		
	>1 year	22	40
	Eruption of 1st tooth	5	9.1
	After age 1		
	Not yet started	11	20
Past dental attendance	Yes	1	1.8
	No	54	98.2
Oral hygiene	Good	38	69.1
	Fair	9	16.4
	Poor	8	14.5
CPITN	Healthy	46	83.6
	Bleeding	8	14.5
	Calculus	1	1.8

A quarter, 14(25.5%) had gingivitis (Figure 1). This condition was diagnosed based on clinical findings: gingival inflammation in the absence of attachment loss, necrosis, or gingival erythematous banding. None of the children in the study had linear gingiva erythema.

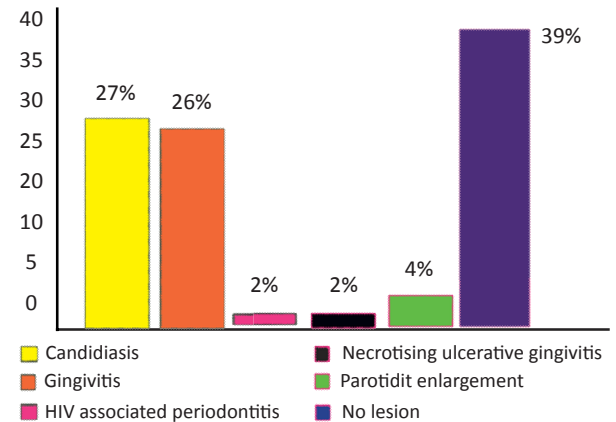


Figure 1. Distribution of oral soft tissue manifestation of HIV.

Using the CPITN index score for the overall periodontal status and treatment needs, 46 (83.6%) of the children had CPITN score of zero (0), while 8(14.5%) had a score of 1, and 1(1.8%) had a score of two (2). The prevalence of plaque was not significantly associated with age ($p=0.49$).

Seventeen (30.9%) had clinical evidence of current or past caries and 69.1% were caries free. The group was then divided by stage of dentition for analysis.

Figure 2 shows the distribution of dmft/DMFT among the children. Over a third of the children in the present study had caries. Three (5.5%) had dmft of 5, and a dmft of 8, 12 and 16 respectively were recorded in one child each. All the (38.2%) needed some form of restorative work, while 5.5% required extraction as shown in Table 3. No congenitally missing or malformed primary teeth were noted.

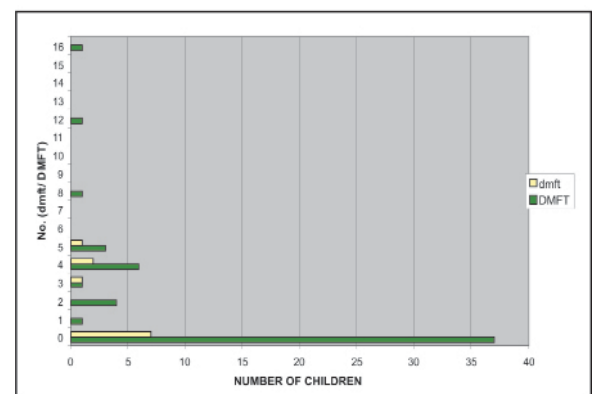


Figure 2. Distribution of dmft/DMFT among the Children Studied.

Table 3. Treatment needs among the children.

Treatment	Frequency	%
None	5	9.1
Prophylaxis	14	25.5
Oral health education	27	49.1
Scaling and polishing	28	50.9
Medication	13	23.6
Periodontal therapy	1	1.8
Restorations	21	38.2
Orthodontics	3	5.5
Oral Surgery	3	5.5
Oral Pathology	2	3.6
Oral Medicine	12	21.8
Referrals	2	36.0

A total of 5.5% of the children had malocclusion and thus require orthodontic treatment.

The overall findings for the various lesions are shown in Figure 1. The most frequently occurring mucosal lesion was Candidiasis (27%), made up of pseudo-membranous candidiasis 7 (12.7%), 2 (3.6%) had oropharyngeal candidiasis, 3 (5.5%) had angular cheilitis and erythematous candidiasis was observed in 3 (5.5%) children. Pseudo-membranous candidiasis was reported as the presence of multifocal, non-adherent, creamy white plaques that can be wiped off with minimal pressure, leaving an erythematous surface. Twelve (21.8%) needed treatment of their oral mucosal lesions: pseudo-membranous candidiasis, oropharyngeal candidiasis.

Parotid gland enlargement was observed in 2 (3.6%) of the children.

DISCUSSION

Despite prophylactic pre-partum therapies, the prevalence of HIV infections in newborn children is likely to increase due to the increasing number of childbearing age female HIV carriers. A longer life expectancy is equally expected due to the advent of more effective antiretroviral therapies for HIV infected children³.

Previous studies have demonstrated a poor dental attendance of HIV positive children¹³. This could be because the parents are seeking *medical* care for themselves and the children, and dental treatment does not seem to be a priority.

Almost one-quarter of the children in the study had gingivitis. Some authors found a higher prevalence of gingivitis in the control group of children than those

infected with HIV infection. The condition is probably unrelated to HIV³.

Linear gingival erythema (LGE) formerly referred to as HIV gingivitis, has been reported to be the most common periodontal disease in children with HIV infection. It has been described as a fiery red, linear band 2 to 3mm wide on the marginal gingiva accompanied by petechia-like or diffuse red lesions on the attached gingival and oral mucosa¹². There was no difference between the periodontal status in HIV infected and non-infected group¹⁴. Information regarding LGE frequency in paediatric patients with HIV-infection is confounding. The present study did not show any positive findings of LGE. A similar finding reported that LGE is a potential complication of paediatric HIV infection with variable frequency among different populations¹⁵. A previous study reported that LGE was present in 38% of their patients, whereas other studies showed lower prevalences¹⁵⁻¹⁷. However, none of the children in the present study had linear gingiva erythema.

Over three-quarters, 46 (83.6%) of the patients in the present study had a healthy periodontium. This is similar to findings from a previous study which reported little difference between the children with HIV-infection group and control group¹⁷, but differed from the previous findings¹⁸ where only 8% had healthy gingivae and the remainder had gingivitis or periodontitis. The present study did not do a comparative analysis using a control group as this was not part of the outlined objectives for the report.

Just over a third of the children in the present study had caries. Three (5.5%) had dmft of 5, and a dmft of 8, 12 and 16 respectively were recorded in one child each. All the carious lesions were untreated. Dental caries in the primary dentition (dmft) of children with HIV-infection was nearly 2.6-fold higher than the United States of America national average of 1.7²². This was in contrast to the DMFT, which was found to be higher for the control group compared to children who had HIV infection.

In this study, dental caries prevalence is low when compared to other studies^{19, 20} on children infected with HIV-infection. This could be due to the fact that anti-retroviral therapy was instituted in majority of the patients shortly before the study was carried started. However, when compared to findings in similar age group amongst non-infected children in Nigeria it was slightly higher²¹. The suggestion that caries development could be directly linked to immunosuppression is yet to be substantiated, although the possibility does exist²². Other factors may be responsible for the high caries level in these children, including infant feeding practices and the long term use of sugar containing medicines²³. Furthermore, socio-

economic class and the use of fluoride are factors which may also influence caries experience apart from the main aetiological factors^{21, 24}.

The restorative need from this study was 38.2%. Various materials such as amalgam, glass ionomer cement and composite resin can be used for the restoration of teeth. Only 3, 5.5% of the children will need extraction. Extractions may have adverse effect on the attitude to oral health care and quality of life of the children in future.

Delayed eruption of teeth has been reported among children HIV-infection²². The mean age in this study for the eruption of mandibular primary central incisor was 6.4+/-2.8. This is within the range for children without HIV-infection¹⁷.

Candidiasis was the most common oral mucosal lesion in the children studied. This finding is consistent with reports from other studies^{3,15,18,25-27}. However, oral pseudo-membranous candidiasis is not uncommon in healthy infants in the first six months of life²⁶. However, in immuno-competent children, candidal lesions are often mild, readily amenable to treatment, or regress spontaneously and are rarely seen beyond infancy in the absence of predisposing factors²⁸. Similar to the other findings, most of the candidal lesions were of the pseudo-membranous type and affected large areas of the oral mucosa²⁹.

Two of the children presented with oropharyngeal candidiasis. The early appearance of oropharyngeal candidiasis in children with HIV-infection during the first year of life was found to distinguish those children who were perinatally exposed to HIV and who ultimately end up being infected from those who will go through a sero-conversion of their immune status.

Parotid gland enlargement appears to be a common phenomenon in children with HIV infection. However, the prevalence varies considerably. A prevalence of 50% in institutionalized patients was reported compared to 8% among hospital out-patients²⁶. Other research found a prevalence of 19.6% in their study population³⁰. This is higher than the 3.6% reported in the present study. The condition occurs late in the course of HIV infection. HIV testing is therefore recommended for paediatric patients with parotid swellings who are not known to be HIV positive¹⁹, because occurrence is rare in the general paediatric population, and it's presence in children is strongly suggestive of HIV-related immunodeficiency¹².

CONCLUSIONS

1) Oral health was not considered a priority for most of these children. The children were already receiving treatment within the hospital with available oral health services. However, there appears to be a barrier to seek treatment. This could be explained from low level of oral health awareness, priority and access to oral health providers. Barriers to care for these children will further include costs, limited availability of funds for children and families who were already impoverished.

2) Candidiasis was the most common lesion. It can be used as a marker for early detection and intervention in paediatric HIV patients.

3) The severity of dental caries in this group of children is high as 3[5.6%] had more than 8 decayed teeth.

RECOMMENDATIONS

- Paediatric dentists can play a role in the early detection of HIV related oral lesions.
- Pediatric dentists should collaborate with other health professionals to correlate oral lesions, immunological parameters, and other clinical findings.
- Patients should be advised on the importance of good oral health and the prevention of oral problems and the need for early intervention for oral and dental lesions thereby preserving the integrity of the oral cavity.
- There is a need for prospective studies on Paediatric HIV infection in Nigeria, especially in non-dental settings to further improve the access to oral health services and subsequently quality of life of this group of patients.

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Correspondence:

DR. O. O. ORENUGA

Department of Child Dental Health, College of Medicine

University of Lagos, PMB 12003

Lagos, Nigeria.

E-mail: lollyreagan@yahoo.com