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Original Research Article.

A Comparative Study of Oral Manifestations of HIV Amongst Affected and Unaffected Children

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ABSTRACT

Background: There were around 40 million people estimated to be affected HIV by the end of the year 2004, with children accounted for approximately 3 million of the total subjects. The disease progression is quicker and more severe amongst children as they are in their developmental stage and due to the immature immune system. The present study was conducted with the aim to determine the frequency of oral manifestations of HIV infection amongst pediatric subjects.

Materials and Methods: The present observational study consisted of total 60 subjects, which were divided into 3 groups, Group I comprised of 20 HIV positive pediatric subjects taking HAART, Group II comprised of 20 HIV positive pediatric subjects not taking HAART and Group III comprised of 20 healthy controls. History of any oral lesion and management strategy taken by the subject were also recorded. Initially the extra-oral and perioral structures were evaluated, followed by the intra-oral structures, for any alteration in size, color and shape of areas and for clinical signs of different lesions. Chi square test was used for analysis. Probability value of less than 0.05 regarded as significant.

Results: There were 25% subjects in group I, 55% in Group II and no subject in Group III suffering from candidiasis. There were 20% subjects in group I, 45% in Group II and 15% subjects in Group III suffering from gingivitis/periodontitis. There was a significant difference in the incidence of candidiasis, periodontitis/Gingivitis, angular cheilitis amongst the groups as the p value was less than 0.05.

Conclusion: There was a significant difference in the oral lesions amongst diseased and the controls. Highly significant difference was observed in the incidence of candidiasis, angular cheilitis and lymphadenopathy.

Keywords: Candidiasis, Gingivitis, Perioral.

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INTRODUCTION

The HIV infections are becoming a social and economical burden, affecting numerous individuals of different communities and countries. There were around 40 million people estimated to be affected HIV by the end of the year 2004, with children accounted for approximately 3 million of the total subjects. The disease progression is quicker and more severe amongst children as they are in their developmental stage and due to the immature immune system.[1] Transmission of HIV in children is seen mainly through vertical transmission i.e. mother to the baby. The risk percentage of transmission by mother happening before or during birth without any medical treatment is approximately 15-20%. Breast feeding by an infectious mother increases the risk of transmission by 5-20% giving a sum total risk of 20-45%. According to a study conducted in Brazil infants affected by vertical transmission was 97.5%. Studies conducted in India have found that vertical transmission is observed in approximately 51 to 83% of children.[2] Oral manifestations are amongst the initial and most crucial indicators of infection by HIV.[2,3] Oral lesions are physiognomies features of infection by HIV and are well iterated in the literature amongst adults and studies have that have been conducted in the past with the results from developed countries have shown that oral lesions are diagnostic features

of HIV infection and that they are used in monitoring progression of HIV disease. Oral conditions amongst the pediatric subjects with HIV infection are typical of the disease condition and though, same as adults, some lesions are typically seen in the pediatric population.[4] The present study was conducted with the aim to determine the frequency of oral manifestations of HIV infection amongst pediatric subjects.

MATERIALS AND METHODS

The present observational study consisted of total 60 subjects, which were divided into 3 groups, Group I comprised of 20 HIV positive pediatric subjects taking HAART, Group II comprised of 20 HIV positive pediatric subjects not taking HAART and Group III comprised of 20 healthy controls. The present study was performed in carried out at ART Center Raipur. The parents/ guardian's of the subjects were informed about the study and a written consent was obtained from them in their vernacular language. Ethical committee clearance was obtained from the institutional ethical board. Patient's identity was kept confidential. Subjects between 2-13 years of age irrespective of the socioeconomic background were included in the study. Oral manifestations were carefully examined by the trained examiners. CD4+ T cell counts were also obtained amongst all the subjects. History of any oral lesion and management strategy taken by the subject were also recorded.

Initially the extra-oral and perioral structures were evaluated, followed by the intra-oral structures, for any alteration in size, color and shape of areas and for clinical signs of different lesions. The oral lesions related to HIV infection were diagnosed on the basis of their clinical presentation and in case multiple sites involvement, all sites were documented. All the data was arranged in a tabulated form and analysed using SPSS software. Chi square test was used for analysis. Probability value of less than 0.05 regarded as significant.

Table 1: Oral manifestations amongst the subjects

Name of disease	HIV positive with HAART (n=20)	HIV positive without HAART (n=20)	HIV negative patient (Control group) (n=20)
Candidiasis	5(25%)	11(55%)	0
Gingivitis/periodontitis	4(20%)	9(45%)	3(15%)
Angular cheilitis	5(25%)	9(45%)	1(5%)
Ulcerative stomatitis	2(10%)	4(20%)	0
Oral hairy leukoplakia	1(5%)	2(10%)	0
Hyperpigmentation	4(20%)	1(5%)	1(5%)
Viral infection	1(5%)	3(15%)	0
Kaposi's sarcoma	1(5%)	1(5%)	0
Cervical lymphadenopathy	5(25%)	8(40.00%)	0
Parotid gland enlargement	3(15%)	7(35%)	0
Mucocele	0	1(5%)	1(5%)
Dental caries	16(80%)	18(90%)	12(60%)

Table 2: Comparison between Group I and Group III

Oral manifestations	Group I	Group III	P value
Candidiasis	5(25%)	0	<0.05
Gingivitis/periodontitis	4(20%)	3(15%)	<0.05
Angular cheilitis	5(25%)	1(5%)	<0.05
Ulcerative stomatitis	2(10%)	0	<0.05
Oral hairy leukoplakia	1(5%)	0	>0.05
Hyperpigmentation	4(20%)	1(5%)	>0.05
Viral infection	1(5%)	0	<0.05
Kaposi's sarcoma	1(5%)	0	>0.05
Cervical lymphadenopathy	5(25%)	0	<0.05
Parotid enlargement	5(25%)	0	<0.05
Mucocele	3(15%)	1(5%)	>0.05
Dental caries	16(80%)	12(60%)	<0.05

RESULTS

A total of 60 pediatric subjects were enrolled in the study. Table 1 illustrates the oral manifestations amongst the three groups. There were 25% subjects in group I, 55% in Group II and no subject in Group III suffering from candidiasis. There were 20% subjects in group I, 45% in Group II and 15% subjects in Group III suffering from gingivitis/periodontitis. There were 25% subjects in group I, 45% in Group II and 5% subjects in Group III suffering from angular cheilitis. There were 10% subjects in group I and 20% in Group II suffering from ulcerative stomatitis. There were 20% subjects in group I, 5% in Group II and 5% subjects in Group III suffering from hyperpigmentation. There were 5% subjects in group I and 5% in Group II suffering from kaposi sarcoma. There were 25% subjects in group I and 4% in Group II suffering from cervical lymphadenopathy.

Table 2 shows the comparison between the oral manifestations amongst Group I and Group III. There was a significant difference in the incidence of candidiasis, periodontitis/Gingivitis, angular cheilitis amongst the groups as the p value was less than 0.05. Non-significant difference was observed in the incidence of hairy leukoplakia and hyperpigmentation amongst the groups. The incidence of dental caries also showed a significant difference between the groups.

DISCUSSION

Oral manifestations of HIV infection are a characteristic feature of disease progression and status of the disease. The frequency of oral lesions in HIV infected subjects tends to differ from country to country. Studies from past, in Africa, have showed a wide variation of prevalence percentage from 1.5% to 94%. However, amongst children with HIV-infection, the incidence of oral lesions in the developed nations has been found to be as high as 72%. Few comparative studies amongst children from developing nations, like Africa, showed variations in the incidence of oral symptoms, like 61% in Brazil, 49% in Thailand, 55% in Romania and 63% in South Africa.[5] In the present study, there were 25% subjects in group I, 55% in Group II and no subject in Group III suffering from candidiasis. There were 20% subjects in group I, 45% in Group II and 15% subjects in Group III suffering from gingivitis/periodontitis. There were 25% subjects in group I, 45% in Group II and 5% subjects in Group III suffering from angular cheilitis. There were 10% subjects in group I and 20% in Group II suffering from ulcerative stomatitis. There were 20% subjects in group I, 5% in Group II and 5% subjects in Group III suffering from hyperpigmentation. There were 5% subjects in group I and 5% in Group II suffering from kaposi sarcoma. There were 25% subjects in group I and 4% in Group II suffering from cervical lymphadenopathy. The oral manifestations like candidiasis and hairy leukoplakia are clinical forecasters of development of AIDS (acquired immune deficiency syndrome). They are usually related with CD4+ T lymphocyte cell count less than 200 cells/µl in blood and elevated viral load amongst patients.[5] The classification of orofacial manifestations in children with HIV-infection is based on the likelihood of a lesion's association with HIV disease.[6] Oral manifestations in HIV/AIDS illustrate the progress of diseased condition and therefore, exert a prognostic significance. The risk factors that affect the development of these oral lesions include decrease CD4+ cell count, xerostomia and lack of anti-retroviral therapy. In our study, there was a significant difference in the incidence of candidiasis, periodontitis/Gingivitis, angular cheilitis amongst the groups as the p value was less than 0.05. Non-significant difference was observed in the incidence of hairy leukoplakia and hyperpigmentation amongst the groups. The incidence of dental caries also showed a significant difference between the groups. As per the study by Barasch A, et al.[7] comparing oral soft tissue lesions amongst HIV-positive and HIV negative children found that HIV-positive children had significantly higher oral soft tissue lesions than age- controlled peers. Especially, the prevalence of candidiasis, gingival erythema and median rhomboid glossitis were significantly higher and it was only candidiasis that was related with a low CD4 count. Candidiasis is one of the most commonly observed mucocutaneous lesions of HIV infection amongst children and its incidence varies between 20%-72%. It has been proposed in different studies that it is an indicator of rapid disease progression and mortality. It is more commonly observed with low CD4+Tcell count or symptomatic HIV disorder.[8] Studies conducted by Dutta N et al[9] and Ranganathan et al.[10] showed similar results as or study with significant difference in the incidence of candidiasis.

CONCLUSION

From the present study we can conclude that the oral manifestations of HIV are significant for the prediction on the disease progression. There was a significant difference in the oral lesions amongst diseased and the controls. Highly significant difference was observed in the incidence of candidiasis, angular cheilitis and lymphadenopathy.

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