

Relationship of Oral Clinic-Cytological Mucosal Changes with Oral Hygiene and Socioeconomic Status in HIV/AIDS patients

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ABSTRACT

Oral lesions are an essential component of disease progression in HIV/AIDS patients and are related mostly to poor oral hygiene and low socioeconomic status. These lesions can further lead to nutritional and psychosocial problems in these patients. No study has been carried out in Pakistan to find out the relation between the frequency of oral lesions and poor oral hygiene as well as poor socioeconomic status. For this purpose, present study was designed and comprised of sixty HIV/AIDS patients whose oral clinical lesions were diagnosed clinically followed by cytological examination of oral mucosal smears using routine and special stains. Simplified oral hygiene index (OHI-S) was used for scoring the oral hygiene. Patients with the income of <10,000 PKRs were considered poor. Regarding the results although no statistically significant value ($p < 0.05$) was obtained but higher frequency of oral lesions were seen in HIV/AIDS patients belonging to low socioeconomic status whereas an inverse relationship was seen with frequency of oral lesions and good oral hygiene. The HIV/AIDS patients should be encouraged to improve their oral hygiene to minimize the oral lesions. Proper awareness along with free medical care should be given to these poor patients who in turn will improve their overall health.

Keywords: HIV/AIDS, Oral Lesions, Oral Hygiene, Socioeconomic status

INTRODUCTION

Oral lesions associated with HIV/AIDS include oral candidiasis, oral warts, oral hairy leukoplakia, oral ulcers, Kaposi sarcoma, squamous cell carcinoma, lymphomas and variety of different bacterial, viral and fungal infections¹. A part from other factors poor oral hygiene and low socioeconomic status also has been reported to be a risk factor for the development of these oral lesions^{2, 3}. Many oral lesions are painful and can interfere with oral functions including speaking, chewing and swallowing rendering the patient in nutritional and psychosocial problems⁴. Oral lesions can exacerbate systemic symptoms such as weight loss and diarrhea due to dysphagia⁵. No data has been published that describes the association between clinic-cytological changes in the oral mucosa of HIV/AIDS patients and oral hygiene as well as socioeconomic status. Hence this study was designed to find out these associations.

MATERIAL AND METHODS

The study was approved by the ethical review committee of University of Health Sciences, Pakistan. A total of sixty HIV/AIDS patients were included in the study. The patients were recruited from the surveillance centers working under Punjab AIDS

Control Programme (PACP) Pakistan. After taking written informed consent, a complete personal profile, relevant clinical history, findings related to the general physical examination and baseline laboratory investigations of the participant were collected maintaining complete confidentiality of the patients. The oral lesions were diagnosed according to the criteria by Oral HIV/AIDS Research Alliance (OHARA)¹. Oral smears were prepared by scraping the buccal mucosa and four slides were prepared from each subject. Cytological changes in the oral squamous cells of HIV/AIDS subjects were studied using Haematoxylin and Eosin, Papanicolaou stains by the recommended procedures. Periodic Acid Schiff (PAS) and Grocott's Methenamine Silver (GMS) stains were applied where fungal infection was suspected. Simplified oral hygiene index (OHI-S)⁶ was used for scoring the oral hygiene. A score of 1-2 was considered good while a score of >2-3 was considered moderate and a score of >3 was considered as poor oral hygiene. For categorizing socioeconomic Status following criteria was used: Poor: Income <10,000 PKR per month, Middle: Income 10,000-50,000 PKR per month and High: >50,000 PKR per month.

Statistical Analysis: Results were analyzed using SPSS 18. Chi-square tests were applied to determine the associations between different variables.

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RESULTS

Variety of oral mucosal changes were observed clinically and cytologically in HIV/AIDS patients including mucositis, oral candidiasis, Oral ulcers, oral hairy leukoplakia (OHL), chronic periodontitis, oral wart, oral pigmentation, inflammation, fungi, micronuclei, nuclear atypia, dysplasia. When these clinicocytological oral changes were compared to oral hygiene, the results obtained are summarized in Table 1. Although no statistically significant value

($p < 0.05$) was obtained but low frequency of oral mucosal changes were seen with the good oral hygiene. When clinicocytological variables were compared with socioeconomic Status, the results obtained are summarized in Table 2. Although no statistically significant value ($p < 0.05$) was obtained but higher frequency of oral mucosal changes were seen in the patients of low socioeconomic Status as compared to high and middle class.

Table 1: Association of Clinic-cytological Changes with Oral Hygiene

Oral Mucosal Changes	Oral Hygiene			P Value
	Good	Moderate	Poor	
Mucositis	0	0	1(1.7%)	0.30
Oral Candidiasis	0	4(6.7%)	1(1.7%)	1
Oral Ulcers	1(1.7%)	2(3.3%)	0	0.36
OHL	0	1(1.7%)	0	1
Chronic Periodontitis	1(1.7%)	8(13.3%)	5(8.3%)	0.23
Oral Wart	0	1(1.7%)	0	1
Oral Pigmentation	4(6.7%)	16(26.7%)	4(6.7%)	0.38
Inflammation	5(8.3%)	25(41.7%)	8(13.3%)	0.59
Fungi	4(6.7%)	20(33.3%)	5(8.3%)	0.60
Micronuclei	2(3.3%)	27(45.5%)	8(13.3%)	0.36
Nuclear Atypia	2(3.3%)	16(26.7%)	6(10%)	0.70
Dysplasia	1(1.7%)	6(10%)	3(5%)	0.64

Table 2: Association of Clinic-cytological Changes with Socioeconomic Status

Oral Mucosal Changes	Socioeconomic Status			P Value
	High	Middle	Low	
Mucositis	0	0	1(1.7%)	1
Oral Candidiasis	0	3(5%)	2(3.3%)	0.64
Oral Ulcers	0	1(1.7%)	2(3.3%)	1
OHL	0	0	1(1.7%)	1
Chronic Periodontitis	0	8(13.3%)	6(10%)	0.36
Oral Wart	0	0	1(1.7%)	1
Oral Pigmentation	0	14(23.3%)	10(16.7%)	0.07
Fungi	0	13(21.7%)	18(30%)	0.57
Micronuclei	0	14(23.3%)	23(38.3%)	0.30
Nuclear Atypia	0	8(3.3%)	16(6.7%)	0.28
Dysplasia	0	6(10%)	4(6.7%)	0.30

DISCUSSION

Awareness to maintain the good oral hygiene can reduce the frequency of oral lesions in HIV/AIDS patients as poor oral hygiene is a risk factor for the development of these lesions^{2,7}. The Simplified Oral Hygiene Index by Greene et al (1960)⁶ provides a simple quantitative expression of oral cleanliness of the individuals. This index includes both oral debris and oral calculus, which are factors considered in oral cleanliness. It is a sensitive method for assessing oral hygiene status. In the present study no significant associations ($p < 0.05$) was seen between clinico-cytological variables and oral hygiene but oral lesions were less frequent with good

oral hygiene as compared to moderate and poor oral hygiene. Same trend was seen by Doshi et al (2009)⁸ when he observed high mean OHI-S score in HIV/AIDS patients having multiple oral lesions. In this study no significant associations ($p < 0.05$) was seen between clinico-cytological variables and socioeconomic status but oral lesions were more frequent in HIV/AIDS patients belonging to low socioeconomic status. Gasprin et al (2009)⁹ also reported the same trend that most of the oral lesions were seen in HIV/AIDS patients belonging to low socioeconomic status. These patients had low education and lack of awareness to seek the proper medical care. Sandeep et al (2014)¹⁰ reported the same trend and in his study about 86% HIV/AIDS

patients belonged to low socioeconomic status having variable oral lesions. According to Noce et al (2009)² although immunosuppression does influence the prevalence of oral lesions in HIV/AIDS patients but socioeconomic status of the patients, good education and awareness to get appropriate medical care and maintenance of good oral hygiene also exerts important influence on the prevalence of these oral lesions.

CONCLUSION

A trend of higher frequency of oral lesions were seen in HIV/AIDS patients belonging to low socioeconomic status whereas an inverse relationship was seen with frequency of oral lesions and good oral hygiene. Large scale studies should be carried out to find out these associations. HIV/AIDS patients should be encouraged to improve their oral hygiene to minimize the oral lesions. Proper awareness along with free medical care should be given to the poor patients to improve their oral health and get rid of nutritional as well as psychosocial problems.

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