



## Original Research Article

# HIV Patients with Dermatological Manifestations Correlated with CD4

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## A B S T R A C T

### Keywords

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The HIV infected patients develop skin lesions at some time throughout the course of disease. The present study was carried out on skin manifestations can be considered as indicators of progression of HIV infections and to see the correlation with CD4 count. The study was conducted over a period of 1 year (Jan 2014 to Jan 2015), in Narayana medical college, Nellore. In total 80 known HIV positive patients with dermatological manifestations i.e., correlated with CD4 count. CD4 counts obtained from the patients medical record. Independent samples tested were used for data analysis. In this study 80 patients had at least one skin problem. Fungal infections were the most common cause. The eight most common types of mucocutaneous problems were gingivitis, itching, photosensitivity, seborrheic dermatitis, candidiasis, folliculitis, pallor and tinea versicolor. The results of this study indicated that skin problems were common among HIV positive patients. Patients with advanced stages of skin disorders had relatively lower CD4 counts. Therefore, examination of skin disorders, as early diagnosis and management of dermatologic problems will improve the quality of life in HIV positive patients.

## Introduction

About 39–46 million people in the world are currently living with HIV/AIDS and HIV infection constitutes a main health problem world-wide. 3-6 Studies on different domains of internal medicine have been trying to look for correlation between CD4 cell counts & systemic changes. Skin disease is one health problem among HIV positive patients presenting with a variety of dermatologic manifestations. Among HIV-infected individuals, skin diseases cause significant morbidity and may be frequently initial signs of immunosuppression. Skin manifestations have been shown to be

valuable clinical indicator of HIV infection and associations have been established between some skin conditions and CD4 cell counts in HIV-infected individuals. The normal absolute CD4 count in adolescents and adults ranges from 500 to 1500 cells per mm<sup>3</sup> of blood.

In general, the CD4 (%CD4+ or absolute count) progressively decreases as HIV disease advances.

Low CD4 cell count is associated with a moderately higher risk for disease

progression among HIV positive patients. Skin conditions may indicate progression of HIV disease and they can be disabling, disfiguring, or even life-threatening. The mucocutaneous manifestations often influence general health status and indicate a worse prognosis of the disease, as well as a diagnostic factor in the monitoring of the immune status of the patients. Several studies have shown that association of skin disorders with HIV infection can serve as an indicator for advanced HIV infection, immunosuppression and decreased CD4 cell counts. The aim of this study was to determine the prevalence of dermatologic problems in HIV positive patients and its relationship to CD4 cell counts.

## Materials and Methods

The study was conducted over a period of 1 year (Jan 2014 to Jan 2015) in Narayana medical college, Nellore. Physical examination was performed to identify all possible skin disorders. In cases with doubtful clinical diagnosis of skin disorder, skin biopsies were taken for histopathological examination and also relevant lab tests were performed. The most recent CD4 counts (cell/mm<sup>3</sup>) of the patients were obtained from patients' medical records after physical examination. The CD4 counts were assessed by flow cytometry (gold standard for CD4 T lymphocytes measurements).

## Results and Discussion

Among 80 patients males were 68(85%) and females were 12(15%) with skin lesions (Table 1). Among 80 patients 75(93.7%) had at least one and 48(60%) had four or more skin lesions (Table 2).

Fungal infection constituted the most common infectious etiology of skin problems. The eight most common types of

mucocutaneous problems were gingivitis, pallor, itching, photosensitivity, seborrheic dermatitis, candidiasis, folliculitis and tinea versicolor (Table 3). Out of 80 HIV infected patients, 46 (57.5%) patients had CD4 counts <200, 12 patients showed CD4 counts between 200 and 350 (15%), 13 patients had counts from 350-500 (16.2%) and 9 (11.2%) patients had CD4 count >500 (Table-4).

In this study in 93.7% of the patients, at least one skin lesion was detected. There is evidence in literature pertaining to the fact that prevalence and pattern of skin diseases vary from region to region for instance the prevalence rates of dermatologic problems in Cameroon, Thailand and Zambia were 41.7%, 68.8%, 95%, 98.3% respectively (Yazdanpanah *et al.*, 2001; Stein *et al.*, 1992; Pitche *et al.*, 1995; Mbuagbaw *et al.*, 2006; Hira *et al.*, 1988). This could be explained by differences in status of self health care, climatic and environmental conditions. In our study fungal and bacterial infections and eczema were the most frequent causes of cutaneous disorders. But in other studies, fungal, viral and bacterial infections together with neoplasia were common causes of skin diseases (Samet *et al.*, 1999; Spira *et al.*, 1996). Similar to Eichmann's study, eczema was common in our patients (Eichmann, 1990).

In a study in the USA the most common conditions were dermatophytosis (34%), oral hairy leukoplakia (23%) and folliculitis (19%).<sup>18</sup> Sivayathorn reported several conditions with prevalence rates higher than 5% including oral candidiasis (34.3%), pruritic papular eruption (32.7%), seborrheic dermatitis (21.0%), herpes zoster (16.1%), oral hairy leucoplakia (14.9%), herpes simplex (10.9%), onychomycosis (9.3%), cutaneous ringworm (7.7%), psoriasis (6.5%) and folliculitis (5.6%) (Michelim *et al.*, 2004).

**Table.1** Sex wise distribution

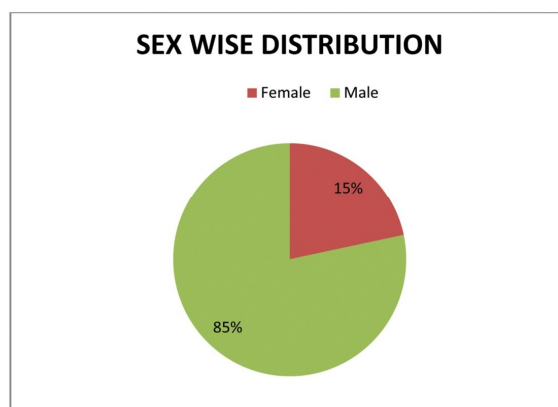
S.No	Sex	Total no.of cases	Positive	%
1	Males	80	68	85
2	Females	80	12	15

**Table.2** Frequency of skin lesions in HIV positive patients

Skin lesions	Patients with skin lesions	
	Frequency	%
No lesions	5	6.25
1 lesion	4	5
2 lesion	7	9
3 lesion	16	20
4 lesion	20	25
5 lesion	10	12.5
6 lesion	4	5
>7 lesions	14	17.5
<b>Total</b>	<b>80</b>	<b>100%</b>

**Fig.1** Sex wise distribution

Figure-1



**Table.3** Frequency of skin diseases in HIV patients

Skin diseases	No	%
<i>VIRAL</i>		
Herpes simplex	10	12.5
Herpes zoster	8	10
Wart	6	7.5
Cytomegalo virus infection	1	1.25
<i>FUNGAL</i>		
Candida albicans	26	32.5
Pityriasis versicolor	18	22.5
Trichophyton rubrum	2	2.5
<i>BACTERIAL</i>		
Folliculitis	22	27.5
Furuncle	8	10
Skin TB	4	5
Abscess	2	2.5
<i>NEOPLASTIC</i>		
Kaposi's Sarcoma	1	1.25
<i>PARASITIC</i>		
Amebiasis	2	2.5
<i>ECZEMA</i>		
Seborrheic dermatitis	23	28.7
<i>OTHERS</i>		
Gingivitis	60	75
Pruritus	36	45
Photosensitivity	28	35
Xeroderma	12	15
Pallor	24	30
Pityrosporum folliculitis	4	5
Aphthosis	3	3.75
Prurigo-like lesions	1	1.25
Eosinophilic pustulosis	2	2.5
Maculo papular lesions	3	3.75

**Table.4** Relationship between CD4 count

CD4 count	<200(%)	200-350(%)	350-500(%)	>500(%)
Infectious	38(82.6%)	6(50%)	5(38.4%)	3(33.3%)
Non-infectious	5(10.8%)	4(33.3%)	8(61.5%)	6(66.6%)
Mixed	3(6.5%)	2(16.6%)	0	0
TOTAL:80	46	12	13	9

**Figure.2** Herpes simplex lesions (*Viral*)



**Figure.3** Candidiasis(*Fungal*)



**Figure.4** Folliculitis (*Bacterial*)



Wiwanitkit concluded that xerosis (73.33%) and oral candidiasis (54.17%) were the most common skin disorders, followed by seborrheic dermatitis (46.67%), pruritic papular eruption (36.67%), oral hairy leucoplakia (12.50%), folliculitis (11.67%), herpes zoster (9.17%) and alopecia (6.67%).

Furthermore, variation in sample size in the different studies may influence the different outcome observed.

In the present study, CD4 correlation was done in 80 patients. Maximum patients, i.e., 46 (57.5%) had CD4 count below 200,

followed by 12 (15%) patients with CD4 counts between 200 and 350, whereas 13 (16.2%) patients had CD4 counts between 350 and 500. The category above 500 was 9(11.2%).Maximum number of infective lesions was seen in patients with CD4 counts below 200 whereas patients with CD4 count above 500 showed minimum infective.

Previous studies showed that CD4 counts <200 cells/cumm were associated with more number of infectious lesions (Kumarasamy *et al.*, 2000; Tschachler *et al.*, 1996; Francis, 1993; Kaplan *et al.*, 1987; Wiwanitkit, 2004). Muñoz-Pérez *et al.* (1998) stated that various dermatoses such as genital herpes, tinea, Kaposi's sarcoma, xerosis, HSV, drug eruptions, candidial folliculitis, *M. contagiosum*, psoriasis, abscess, verruca vulgaris, PPE, oral hairy leukoplakia and seborrheic dermatitis could be used as clinical markers of disease progression due to their strong association with CD4 counts (Muñoz-Pérez *et al.*, 1998).

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