



ISSN Print: 2394-7500
ISSN Online: 2394-5869
Impact Factor: 5.2
IJAR 2018; 4(7): 169-178
www.allresearchjournal.com
Received: 27-05-2018
Accepted: 28-06-2018

Dr. Archana Lokhande
MBBS, MD (Dermatology)
Senior Resident, Department
of Dermatology, 1st Floor, Opd
Building, ESIC PGIMER,
Model Hospital, New Delhi,
India

Dr. Santosh Kumar Mahto
MBBS, DND (Paediatrics)
Senior Resident, Department
of Pediatrics, Palika Maternity
Hospital, New Delhi, India

Dr. Amita Sutaria
MBBS, DVD, MD
(Dermatology) Assistant
Professor, Deptt. Of
Dermatology, Room No. 139,
Deptt. of Dermatology
1st Floor, Opd Building, Civil
Hospital, Ahmedabad,
Gujarat, India

Dr. Bela J Shah
MBBS, DVD, MD
(Dermatology) Professor and
Head, Deptt. of Dermatology,
Room No. 140, Deptt. of
Dermatology 1st Floor, Opd
Building, Civil Hospital,
Ahmedabad, Gujarat, India

* Both Authors have
contributed equally in the
manuscript.

Correspondence

Dr. Santosh Kumar Mahto
MBBS, DND (Paediatrics)
Senior Resident, Department
of Pediatrics, Palika Maternity
Hospital, New Delhi, India

Dr. Amita Sutaria
MBBS, DVD, MD
(Dermatology) Assistant
Professor, Deptt. Of
Dermatology, Room No. 139,
Deptt. of Dermatology
1st Floor, Opd Building, Civil
Hospital, Ahmedabad,
Gujarat, India

Study of mucocutaneous manifestations of HIV in 526 seropositive patients attending a tertiary care centre in Gujarat

Dr. Archana Lokhande*, Dr. Santosh Kumar Mahto*, Dr. Amita Sutaria and Dr. Bela J Shah

Abstract

Background: Muco-cutaneous manifestations of HIV/AIDS develop in more than 90% of HIV infected patients. They are amongst the first recognized clinical manifestations of HIV/AIDS and acts as good clinical markers for assessment of patient's immune status as well as CD4 count.

Dermatological manifestations of HIV usually present with atypical clinical spectrum and may co-exist with other pathologies.

Objective: The study was conducted with the primary objective of studying the prevalence of various muco-cutaneous manifestations of HIV/AIDS, their relationship with CD4 count and side effect of anti-retroviral therapy (ART).

Materials and Methods: A hospital based cross sectional study was conducted during July 2011 to June 2014 which enrolled a total 526 HIV/AIDS -positive patients. Study patients were screened for various muco-cutaneous manifestations of HIV/AIDS and ART along with their correlation with CD4 count. The data was analysed by Chi-square test and SSPF software.

Results: Total 713 muco-cutaneous manifestations occurred with an average of 1.35/ patient. Infections were most common manifestation compared to non-infectious manifestations; it constituted 69.71% and 29.58% respectively. Viruses (34.64%) were most common infectious agents followed by fungal infections (17.11%). Majority of events were seen at 200-500 cells/ μ l CD4 count. Nevirapine was the most common anti-retroviral drug causing cutaneous side effects.

Conclusion: The study results suggest that even though infections were the most frequent cause of muco-cutaneous manifestations in HIV positive patients, we observed a shift in the most common infectious agents from fungi to viruses. A similar kind of shift was also observed in STI from bacterial STI to viruses being the commonest causative agents. Even though ART has increased the life expectancy in these patients, it also exposes them to diverse side-effects

Keywords: Acquired immune deficiency syndrome (AIDS), Human immunodeficiency virus (HIV), Mucocutaneous manifestation of AIDS, Immune reconstitution inflammatory syndrome (IRIS), Adverse cutaneous drug reactions (ADRs), Anti-retroviral therapy (ART)

Introduction

Muco-cutaneous manifestations of HIV/AIDS develop in more than 90% of HIV infected patients and they are amongst the first recognized clinical manifestations of AIDS [1]. Cutaneous events are not only seen at every stage of HIV infection but also could be the first presenting feature providing diagnostic suspicion of HIV. These clinical manifestations acts as good clinical markers for assessment of patient's immune status, CD4 count and thus has got prognostic importance.

Dermatological manifestations of HIV usually present with atypical clinical spectrum and may co-exist with other pathologies thus posing a challenge to diagnose and treat for dermatologists.

These manifestations could be a major cause of significant morbidity and mortality in affected individuals [2, 3].

Cutaneous examination offers an opportunity to recognize, monitor or treat various adverse effects of anti-retroviral therapy (ART) and special immune reconstitution inflammatory syndrome (IRIS) caused after initiation of ART.

Materials and Method

It was a hospital based cross sectional study conducted during July 2011 to June 2014 after obtaining ethical clearance from institutional thesis committee. We enrolled a total 526 patients of both sexes and all age groups living with HIV/AIDS attending or referred to the dermatology outpatient department. Cases were allocated by simple random sampling after obtaining informed written consent for the use of medical records and taking photographs. Socio-demographic profile, a brief history, thorough clinical examination and relevant laboratory tests were performed. Special emphasis was given to mucocutaneous manifestations, CD4 count, clinical staging of AIDS, ART regimens in all patients.

The study was conducted with the primary objective of studying the prevalence of various muco-cutaneous manifestations of HIV/AIDS and ART along with their correlation with CD4 count. The present study also gave an opportunity to measure the relationship between STDs & HIV, IRIS and ART; adverse cutaneous reactions of ART. Data analysis was done by Chi-square test and SSPF software (statistical software for social sciences) for statistical analysis.

Observations and Results

1) Socio-demographic profile: Among the total 526 study patients, 328 (62.36%) were males, 194 (36.88%) were female and 4 patients (0.76%) were transgender. Male to female ratio was 1.69: 1. 472 (89.73%) patients were adults (>19 yrs.), followed by 26 (4.94%) patients in paediatric age group (0-10 year) and 29 (5.51%) in adolescent age group (11-18 years). Prevalence of HIV/AIDS in adolescent age group was 5.51% in the present study. Mean age of study population was 34.47 years with youngest and oldest patient being of 2.5 and 71 years old (Fig 1).

Of total 406 married individuals in present study, 49.02% (n=199) were sero-discordant and in 45.32% cases both the partners were seropositive. Out of 164 PLHA married women, 110 (67.07%) had seropositive husbands and 82 (51.83%) females clearly denied history of sex outside the marital relationship. Results of the present study indicate that sexual transmission continued to be the main route (85.74%) of HIV transmission (Table 1).

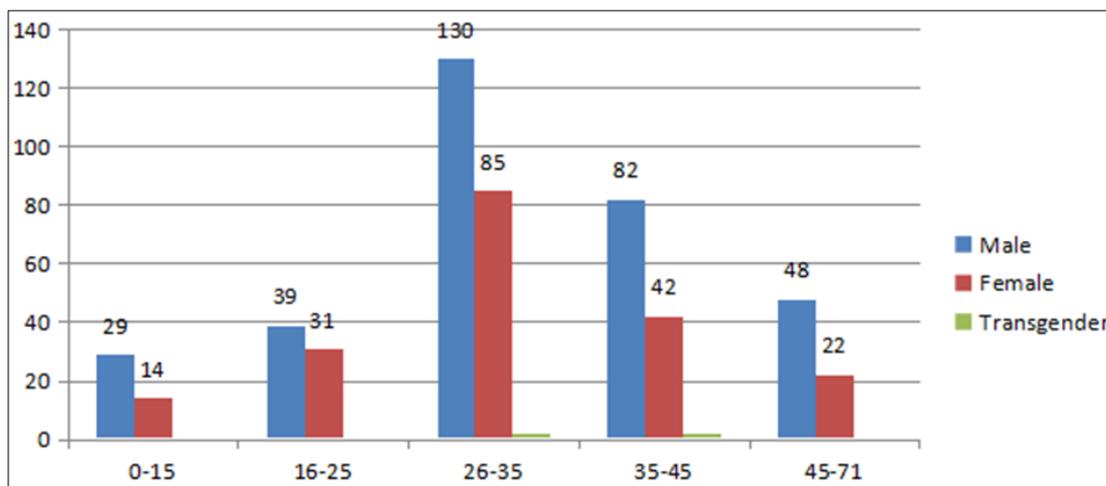


Fig 1: Age and sex distribution of study population

Table 1: Socio-demographic profile of all patients in the study

S. No	Parameter	No (total no=526)	Relative % in the study
1	Sex distribution	Male	n=328 62.36%
		Female	n=194 36.88%
		Transgender	n=4 0.76%
2	Age distribution	Mean age	34.47
		Range	2.5 -71 years
3	Marital status	Married	406 77.19%
		Unmarried	120 22.81%
		Heterosexual	451 85.74%
4	Mode of transmission	Men having sex with men	17 3.23%
		Vertical Transmission	35 6.65%
		Transmission via blood and blood products	8 1.52%
		Transmission via use of multiple injections	5 0.95%

Maximum numbers of patients were educated till secondary standard (58.75%); followed by primary standard (14.34%), higher secondary (12.74%), 8.18% of PLHIVs were illiterate.

After considering the occupation it was found that among 194 female patients (n=138) 26.24% were housewives which represented as a single large group. A total of 163

(30.99%) PLHA were migratory population, which comprised of 93 (17.69%), it included daily wedge labourer, diamond workers.

2) Spectrum of muco-cutaneous manifestations: Total of 713 muco-cutaneous manifestations occurred in 526 patients, average being 1.35 in a given patient. These

manifestations were divided in 2 main categories as infectious (n=498) and non-infectious (n=215) manifestations; constituted 69.71% and 29.58% respectively (Table 2).

Table 2: Spectrum of infectious manifestations

Infections	Type of infection (n=)	Total no of events	% of total cutaneous manifestations	Median CD4 count
Herpes simplex virus type 1 and 2	Herpes genitals (69) Single episode	94	13.18	HP-394.35 401.25
	Recurrent episodes			
	Perianal herpes genitalis (16)			
	Necrotic herpes genitalis 09	16		
Herpes labialis 10				
Varicella zoster virus	Herpetic gingivo-stomatitis 06	37	05.19 00.42	349.76
	Multidermatomal herpes zoster 16			
	Hemorrhagic and necrotic herpes zoster 15			
	Herpes zoster ophthalmicus 6	3		
Human papilloma virus	Chicken pox	33	7.29	377.30
	Genital warts 14			
	Condyloma accuminata 8			
	Anal warts 7			
	Bowenoid papulosis 2			
	Buschke lowenstein tumour 2			
	Epidermodysplasia verruciformis			
Molluscum contagiosum virus	Verruca plana	6	5.89	251.56 267.88
	Verruca vulgaris	9		
	Genital 24	42		
Extragenital 18				
Oral hairy leucoplakia	-	3	00.42	
Oral or oesophageal candidiasis	-	23	3.23	416.96
Vulvovaginal candidiasis, candidal balanitis	-	11	1.54	414.27
Dermatophytosis	-	68	09.54	329.84
Onychomycosis	-	9	01.26	355.78
Intertrigo	-	4	00.56	948.25
Pityriasis versicolor	-	4	00.56	280
Pityrosporum folliculitis	-	3	00.42	298.67
Superficial skin & Subcutaneous infections	-	49	6.87	440.73
Lupus vulgaris	-	4	0.56	420.75
Leprosy	-	3	0.42	313.33
Scrofuloderma	-	3	0.42	319
Acne	-	3	0.42	214.66
Syphilis	-	34	4.77	411.32
Gonorrhoea	-	7	0.98	266.28
Chancroid	-	8	1.12	261.88
Granuloma inguinale	-	2	0.28	272.5
LGV	-	1	0.14	34
Scabies	-	10	01.40	365.3
Demodex folliculitis	-	3	00.42	285.67
Leishmaniasis	-	1	00.14	534
Pediculosis capitis	-	1	00.14	125

Most common manifestations were viral infections (Fig 2a, b, c, d, e) seen in 34.64% patients followed by non-infectious dermatoses (30.15%), fungal infections (17.11%) (Fig 3), bacterial infections (15.99%) (Fig 4a, b), and parasitic infections (2.10%). In children non-infectious dermatoses (45.0%) were the most common presentation followed by fungal infections (22.50%), viral infections (17.5 %) and parasitic infections (5%). (Fig 5)

In the present study most common non-infectious disorder noted was xerosis-ichthyosis in 4.74% followed by pruritic papular eruptions (PPE) 4.56%, Seborrheic dermatitis

4.37%, pruritus 4.18%, diffuse hair loss 2.85%. Seborrheic dermatitis in paediatric patients often presented with secondary bacterial infection and recurrences. Acquired trichomegaly (Fig 6) was observed in 2 patients only. Among HIV induced neoplasia one case of squamous cell carcinoma of anal canal and one case of cervical intra-epithelial neoplasia was noted in the study but we did not come across any case of Kaposi sarcoma in the present study.



Herpes labialis 2a



Herpes zoster ophthalmicus 2b



Multi dermatomal herpes zoster 2c



2d multiple warts

2e multiple mollusci

(Fig viral infections 2a, b, c, d, e)



Fig 3: oral candidiasis



4a Lupus vulgaris

4b Scrofuloderma

Bacterial infections Fig 4a, b

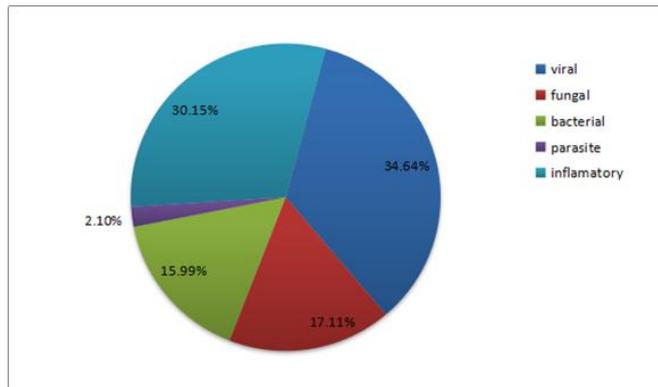


Fig 5: Pie diagram representative of all mucocutaneous manifestations



Fig 6: Acquired trichomegaly (with multiple warts)



7a Perianal herpes progenerialis

7b fig secondary syphilis

(Fig7a, b) Genital herpes



Fig 8: Condyloma lata



Fig 9: genital wart

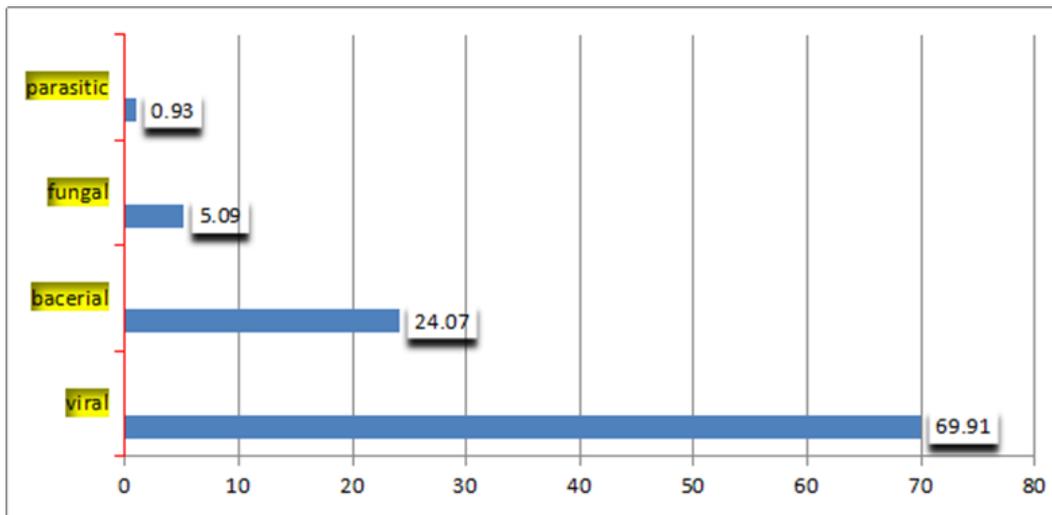


Fig 10: Classification of STIs according to the etiological agent



Fig 11: Steven-Johnson syndrome

3) STIs and HIV: In the study out of all cases, 6.65% (n=35) of cases were diagnosed due to atypical mucocutaneous presentation of dermatological diseases. Out of all this patients, 74.29% cases were diagnosed due to atypical presentation of STI.

Overall STI prevalence in present study was 26.67%. Viruses (69.91%) were the major STI causing agents, followed by bacteria, which were responsible for 24.07% of cases. Genital herpes (43.52%) (Fig 7a, b) was the commonest STI followed by secondary syphilis (15.74%) (Fig 8), genital wart (15.74%) (Fig 9), molluscum contagiosum (11.11%), vulvovaginal candidiasis (5.09%), chancroid (3.7%), gonorrhoea (3.24%), granuloma inguinale (0.97%), nodular scabies and lymphogranuloma venereum respectively. (Fig 10)

Mixed venereal diseases were found in 38 patients, the response to treatment was variable in these patients. In case of syphilis atypical presentations like multiple primary chancres and variability in RPR test titre from 1:2 to 1:512 were present.

4) Relationship of mucocutaneous manifestations with CD4 count

Majority of muco-cutaneous conditions were present at all CD4 counts but predominantly seen at 200-500 cells/ μ l CD4 count. PPE occurred at median CD4 count of 337.92%. Secondary syphilis, giant mollusci and florid warts were more commonly seen at lower CD4 count (100-200 cells/ μ l). (Table 3)

Table 3: Relationship of muco-cutaneous manifestations with CD4 count

CD4 count	< 100	101-200	201-350	351-500	>500
Herpes genitalis (n=94)	8	16	23	22	25
HPV warts (n=52)	3	14	10	16	9
molluscum contagiosum	7	13	9	10	13
Pyodermas	2	9	7	17	14
secondary syphilis	1	5	14	1	12
mucocutaneous candidiasis	3	4	9	7	11
Dermatophytosis	8	10	21	21	8
Scabies	-	1	5	2	2
seb ds	2	2	7	7	5
PPE	-	6	8	9	3
Slim's disease	3	-	-	-	-
Total	34	80	113	112	112

5) Effect of ART

Among anti-retroviral drugs nevirapine was the most common ART drug causing cutaneous ADRs, it showed wide spectrum of manifestations such as maculo-papular rash, atypical erythema multiforme, Steven-Johnson syndrome (Fig 11), toxic epidermal necrolysis. Zidovudine induced nail pigmentation, metabolic acidosis and anemia were noted in 26 patients, whereas 19 patients showed stavudine induced lipodystrophy, metabolic acidosis and peripheral neuropathy. Other common non ART culprit drugs responsible for ARDs were cotrimoxazole and anti-tubercular drugs.

Of total patients started on ART, 4.84% (n=19) patients developed IRIS. Among the IRIS cases, HSV infections in 26.32% (n=5/19), VZV infections in 21.05% (n=4/19), HPV infections 15.79% (n=3/19), oral candidiasis 15.79% (n=3/19), molluscum contagiosum 10.53% (n=2/19), dermatophytosis 5.27% (n=1/23), scrofuloderma 5.27% (n=1/19) were noted.

Discussion

In our study 62.36% patients were males, 36.88% were female and 0.76% were hermaphrodites with male to female ratio was 1.69: 1, but it was statistically insignificant (p=0.897). This is similar to studies done by Shobhana and Prabhakaran [4, 5] *et al.* whereas in studies conducted by Jindal *et al.* [6] and Chopara *et al.* [7] has shown slight female preponderance.

Maximum 79.09% (416) patients being in the 15-49 age group, 8.18% patients were children and 5.51% (29) in adolescent age group (11-18 years). Maximum numbers of patients (58.75%) were educated till secondary standard. Sexual transmission was the predominant mode of transmission in 85.74% of cases.

Out of all sero-positive females almost 50% clearly denied history of sex outside the marital relationship; which indicates that marital sexual relations have put these females at the risk of acquiring HIV by their spouses. In our study serodiscordancy among married couple was present in 49.02%. Discordant couples are definitely at high risk of HIV transmission; study by BC Ravikumar *et al.* [8] has explained different reasons for serodiscordancy among such couples as follows-1) lower sexual frequencies between the couple is insufficient to transmit the infection. 2) Cellular immunity and viral characteristics may be associated with HIV discordance, especially among individuals bearing mutant alleles of CCR-5 making them inherently resistant to the infection. [9] Earlier initiation ART in an affected spouse along with protection of uninfected partner are

acknowledged as best practices and helps to reduce HIV transmission to uninfected partners [10].

Average mucocutaneous manifestations in our study was 1.35 /patient at presentation; the same was 1.2/patient in study by Prabhakaran, *et al.* [5]; Vasudevan *et al.* [11] 2.48 (± 1.16) manifestations per patient. In the present study we found infections as most common cause of mucocutaneous manifestations in HIV positive patients, similar kind of observation has been reported by almost all previous studies conducted in India. Studies by Chopara *et al.* [7], Shobhana *et al.* [4] and Vasudevan *et al.* [11] has found fungal infection as most common infection in the form candidiasis but Vasudevan *et al.* [11] has found dermatophytosis as most common fungal causative agent. In contrast to all other studies we had found viral infections as most common infections followed by fungal infection.

In noninfectious dermatoses xerosis and PPE were common followed by seborrheic dermatitis. Pruritus, xerosis and ichthyosis were prevalent in 21.86% patients with non-infectious manifestations, as compared to 6.6% in study by Sharma *et al.* [12]. Suggesting these are quite common and active search for non-infectious dermatoses should be made as it could get easily overlooked. Among the non-infectious manifestations-pruritic papular eruptions of HIV was prevalent in 11.16% (n=24) of non-infectious dermatosis, which was 35.8% in study by Sharma *et al.* [12] and 7.7% in Kumaraswamy *et al.* [13] study. PPE is considered as a sign of an advanced degree of immunosuppression, occurring at CD4 counts below 100-200cells/mm³, but in our study, it occurred at median CD4 count of 337.92 cells/mm³.

Study conducted by Jindal *et al.* [6] had shown seborrheic dermatitis as most common non-infectious dermatoses. SD is generally observed with enhanced stages of immunosuppression almost in 85% [3] but we didn't come across the same in present study. We observed acquired trichomegaly in 2 patients but not straight hair sign. We also did not come across any case of Kaposi sarcoma and AIDS associated lymphomas in our study.

STIs hold an integral relationship with HIV/AIDS as they act as diagnostic clue. In our study 6.65% of manifestations were due to STIs. Remarkable upsurge in viruses being causative agent for STIs was noted in the present study (Table 4). Previous old study from northern India by Chopra *et al.* [7] in 1990 showed syphilis as most common STD in 29.6%, followed by vaginitis 15%, condylomata accuminata 12%, genital herpes 11.6%, gonorrhoea 10%, chancroid 8.8%, balanoposthitis 5.4%, non-gonococcal urethritis 5.2%, and lymphogranuloma venereum, Molluscum contagiosum and donovanosis each 0.2%. Other study from North-east India by Jaiswal AK *et al.* [14] in 2002, showed (25.77%)

were of chancroid, 108 (19.6%) were of CA, 77 cases (13.97%). NGU, 55 (9.98%) cases LGV, 51 (9.26%) cases syphilis and remaining 118 (21.42%) were of gonorrhoea, Herpes Genitalis, Balanoposthitis and Mixed Infections. These changes indicate decreasing trends in bacterial STIs and rise of Viral STIs over the period of last 25 year.

In present study all types muco-cutaneous conditions were predominantly seen at 200-500 cells/µl CD4 count (Table 3). In study conducted by Chawan *et al.* [15] infectious

manifestations were seen more commonly with CD4 counts below 350 and non-infectious skin lesions were seen more commonly with CD4 counts more than 350, but the present study failed to show such correlation. At lower CD4 counts the manifestations were more severe and intense. (Table 4: Comparative analysis of different studies with present study)

Table 4: Comparison of different studies with current study

S. No.	Study author, journal, Year Study details	Demographic details	Spectrum of muco-cutaneous m/f	STI and HIV	Relation with CD4 count Cells/uL	Effect of ART
1	Present study Duration Jun 2011-Dec13 N=526	1) M=328(62.36%) F=194(36.88%) Transgender=4 2) M:F=1.69:1 3) M.c age gr-31-40 Mean age 34.47	m.c dermatoses Infection- 69.71% 1) HSV- 20.91% 2) Dermatophytosis- 12.93% 3) HPV-9.89% 4) Superficial & deep cutaneous pyoderma- 9.32% Noninfectious manifestation 29.58% 1) xerosis 缺憾cthyosis 4.74 % 2) PPE (4.56%) 3) seborrhoeic dermatitis (4.37%)	1 HSV- 43.52% 2 syphilis -15.74%	Most manifestations at cd4 200-500 Cells/uL	1) Nevirapine 2) Zidovudine 3) Stavudine Other drugs 4) Anti-tubercular drugs 5) Cotrimoxazole
2	Prabhakaran, <i>et al.</i> [5] :IJSTD 2015 Nov 12-may 14 N=170	Mean age 39.88+/-9.44 M:F=1.04:1	m.c dermatoses- Infections- 1) oral candidiasis 36% 2) dermatophyte 13% 3) HZ-6% 4) Strengthening of hair -36% Noninfectious manifestation a) Generalized Pigmentation 16-4% b) Seborrhoeic dermatitis 16- 4% c) Papular pruritic dermatitis 16 -4% (including papular urticaria) d) Psoriasis 12- 3%	Most common STI 1) GUD -10.5% (genital herpes-8%) 2) wart 8% 3) VDRL + =21%	1) OHL-68 2) oral candidiasis-98 3)HZ-198 4)gen herpes-187 5)wart -152	1) INH induced lichenoid eruption (1- 0.2%) 2) Zidovudine induced blue discoloration (1- 0.2%) 3) Nevirapine induced erythema multiforme (1- 0.2%)
3	Chawhan, <i>et al.</i> [13]: IJSTD 2013 2 years N=110	1) M= 74 F=36 2) M:F=1:0 3) M.c age gr-31-40 Mean age 34	m.c dermatoses- Infectious 54 (48.98%) 1) Molluscum contagiosum (15), 2) warts (8), 3) Herpes zoster (6) 4)candidiasis 2 Non缺憾nfectious 40 (36.37%)			
4	Vasudevan, <i>et al.</i> [11] MJAFI 2012;68:2 N=234	1) M=234 F=0 2) M:F=1:0 3) M.c age 36.35 缺憾11.15 4) m.c MOT- Hetrosexual 78 (86.67 %)	m.c dermatoses- Infections 306(56.41%)- 1) Onychomycosis 62 (26.5%) 2) Tinea corporis n cruris 59 (25.22%) 3) Warts 39 (16.67%) 2) HZ-12(13.33%) oral candidiasis 29 Noninfectious manifestation 1)Xerosis 39 (16.67%) 2) Papular eruptions 27 (11.54%) 3) Seborrhoeic dermatitis 23 (9.83%)	Sexually transmitted infections 32 (10.68%) 1) Herpes progenitalis 11(%) 2) syphilis10 3) chancroid 5	1) Onychomycosis 291 2) Tinea corporis 296 3) oral candidiasis 233 The average CD4 count was 249/缺憾1 maximum cutaneous manifestations at cd4 count 200-350/ul	Drug reaction 2 1) maculopapular rash cotrimoxazole 2) Fixed drug eruption to tinidazole. The average CD4 count 241/ul

5	Chopra S ^[7] , Journal of Clinical and Diagnostic Research. 2012 December, Vol-6 (10): 1695-1698	1) M=44 (48.89%) F=46 (51.11%) 2) M:F=1:1.05 3) M.c age group 21-40 (n=63=70%) 4) m.c MOT-Hetrosexual 78 (86.67%)	m.c dermatoses- Infections- 1) Oral candidiasis 29 (32.22%) 2) HZ-12(13.33%) 3) Venereal warts 7 (7.77%) Noninfectious manifestation 1) Seborrhoeic dermatitis 8 (8.88%) c) Papular pruritic dermatitis 7 (7.77%) 3) drug rash 2 and generalised pigmentation 2 (2.22%)	1) Venereal warts 7 (7.77%) 2) Herpes progenitalis 6 (6.66%)	-No comment	Drug rash 2 (2.22%) -No comment about culprit drug
6	Jindal N ^[6] , IJDLV 2009;75:283-6 Dec 2002-May 2005. N=38	1) M=18 (47.4%) F=20 (52.6%) 2) M:F=0.9:1 3) Mean age =30 5 years 4) m.c MOT-Hetrosexual 33 (86.8%)	m.c dermatoses Infection-63.15% 1) HZ-31.5% 2) oral candidiasis 26.3% 3) dermatophyte 13.2% 4) mollusci-13.2% Noninfectious manifestation 1) seborrhoeic dermatitis (18.4%) 2) PPE (7.9%)	1) Venereal warts 3 (7.9) 2) Herpes progenitalis 3 (7.9) 3) Chancroid 2 (5.3)	-No comment	-No comment
7	Shobhana A ^[4] , IJDLV2004;70:80-6 May2000-apr2002, N=410	1) M=295 F=115 2) M:F=1.39:1 3) Mean age =29yr 4) m.c MOT-Hetrosexual	m.c dermatoses- Infections- 1) oral candidiasis 36% 2) dermatophyte 13% 3) HZ-6% 4) Strengthening of hair -36% Noninfectious manifestation a) Generalized Pigmentation 16 -4% b) Seborrhoeic dermatitis 16- 4% c) Papular pruritic dermatitis 16 -4% (including papular urticaria) d) Psoriasis 12- 3%	Most common STI 1) GUD -10.5% (genital herpes-8%) 2) wart 8% 3) VDRL +=21%	1) OHL-68 2) oral candidiasis-98 3) HZ-198 4) gen herpes-187 5) wart -152	1) INH induced lichenoid eruption (1- 0.2%) 2) Zidovudine induced blue discoloration (1- 0.2%) 3) Nevirapine induced erythema multiforme (1- 0.2%)

Even though HAART has improved the quality of life of patients and decreased the incidence of mucocutaneous manifestations, it has also exposed the patients on ART to its multiple side effects. In our study we found nevirapine as the most common ART drug causing cutaneous ADRs, followed by zidovudine and stavudine.

Patients on HAART can also develop IRIS which is characterized by paradoxical worsening of existing clinical condition or appearance of a new disease. In the current study 4.84% of patients on HAART experienced IRIS with infection being most common presentation. Results of the study by David M. *et al.*^[16] showed presence of IRIS in 10.4% patients.

Conclusion

The dermatological manifestations of HIV are not only common but they often represent as a diagnostic feature of HIV infection correlating with the degree of immunosuppression in the affected host. There is a marked increase in severity of atypical presentation of these conditions. Even though infections are the most common muco-cutaneous manifestations in HIV positive patients, a change in the etiologic causative infectious agents from fungi to viruses was observed in present study. Also a

similar kind of shift was observed in agents responsible for STI from bacteria to viruses. The introduction of HAART therapy has helped in improving the immune status of the patients, thus help to curb the prevalence of various infectious dermatoses but, at the same time it has also exposed the patients to varied drug related adverse effects.

Acknowledgment

We would like to thank all the professors, teachers, post graduate residents and staff of department of dermatology of B.J. medical College for their constant support, guidance and help in the study work. We would also like to thank ART center of Civil hospital Ahmedabad. And lastly a sincere thanks to all our patient without whom the learning for us doctors would never have been possible.

References

- Thappa DM. Mucocutaneous manifestations of HIV infection and AIDS. In: Kumar B, Gupta S, editors. Sexually transmitted infections. 1st ed. New Delhi: Elsevier, 2005, 673-93.
- Bunker CB, Gotch E. AIDS and the skin. In: Bums T, Breathnach S, Cox N, Griffiths C, editors. Rook's

- textbook of dermatology. 8th ed. Oxford: Blackwell Science. 2004; 26:1-26.
3. Marfatia. Mucocutaneous manifestations of HIV. In: Gupta S, Kumar B. editors. Sexually transmitted infections textbook, 2 nd ed. India: Elsevier Publishing House, 2012, 877-8.
 4. Shobhana A, Guha SK, Neogi DK. Mucocutaneous manifestations of HIV Infection. Indian J Dermatol Venereol Leprol. 2004; 70:82-6.
 5. Prabhakaran N, Jaisankar TJ, Hamide A, Malathi M, Kumari R, Thappa DM. Effect of antiretroviral therapy on mucocutaneous manifestations among Human Immunodeficiency Virus-infected patients in a tertiary care centre in South India. Indian J Sex Transm Dis. 2015; 36:166-73.
 6. Jindal N, Aggarwal A, Kaur S. HIV seroprevalence and HIV associated dermatoses among patients presenting with skin and mucocutaneous disorders. Indian J Dermatol Venereol Leprol. 2009; 75:283-6.
 7. Chopra S, Arora U. Skin and mucocutaneous manifestations: useful clinical predictors of HIV/AIDS. J Clin Diagn Res. 2012; 6:1695-1698.
 8. Ravikumar BC, Balakrishna P. Discordant HIV couple: Analysis of the possible contributing factors. Indian J Dermatol. 2013; 58:405.
 9. Huang Y. The role of a mutant CCR-5 allele in HIV-1 transmission and disease progression. Nat Med. 1996; 2:1240-3.
 10. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection, WHO June Switzerland, 2013, 93.
www.who.int
 11. Vasudevan B, Sagar A, Bahal A, Brig AP, Mohanty VS. Cutaneous manifestations of HIV-A detailed study of morphological variants, markers of advanced disease, and the changing spectrum. Med J Armed Forces India. 2012; 68:20-7.
 12. Sharma A, Chaudhary D, Modi M, Marfatiya YS. Non-infectious manifestations of HIV/AIDS. Indian J Sex Transm Dis. 2007; 28:19-22.
 13. Kumarasamy N, Solomon S, Madhivanan P, Ravikumar B, Thyagarajan SP, Yesudian P. Dermatologic manifestations among human immunodeficiency virus patients in south India. Int J Dermatol. 2000; 39:192-5.
 14. Jaiswal AK, Banerjee S, Matety AR, Grover S. Changing trends in sexually transmitted diseases in North Eastern India. Indian J Dermatol Venereol Leprol. 2002; 68:65-6.
 15. Chawhan SM, Bhat DM, Solanke SM. Dermatological manifestations in human immunodeficiency virus infected patients: Morphological spectrum with CD4 correlation. Indian J Sex Transm Dis. 2013; 34:89-94.
 16. David Murdoch M, Willem Venter DF. Charles Feldman; Annelies Van Rie, Posted: 07/16/2008; AIDS. 2008; 22(5):601-610.
©Lippincott Williams & Wilkins.s