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Original Research Article

A Dermatological Complications Despite of Lower CD_4 Count in HIV Infected Patients

Sathish K.S.[1], Monika. M. Gowda[2]

[1]Associate Professor, Department of Dermatology, Kempegowda Institute of Medical Science, Bangalore -560004, Karnataka, India.

[2]Assistant Professor. Department of Dermatology, Kempegowda Institute of Medical Science, Bangalore-560004, Karnataka, India.

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Corresponding author: Dr. Satish K.S.

Conflict of interest: Nil

Abstract

Background: The present study attempt to know the prevalence of different association with dermatological complication in HIV infected patients.

Methods: An observational study was conducted at Department of Dermatology and Venerology, KIMS Bengaluru during the period 2014-2015. PLHIVs who are received on 'HAART' with the age group 20-55 years were considered for the study population.

Results: The overall prevalence of skin lesions in the age group 20-55 years of HIV infected patients was 36.0%, the scabies is the most communist manifestations in the study population it was expressed 40.0% with mean CD4 count was <225 micro /dL p<0.01 87.0% followed by Hz 0.89 p<0.01; CD4 count was 250 micro/dl, Kaposi's sarcoma 6.33% p>0.01; Drug eruptions 6.0%; Papular pruritic eruptions(7.67%) p<0.01; Nail pigmentations (10.50%) p<0.01 and Fungal infections- Candida 15.33 % p<0.01; Lichenoid Eruption 6.33% and herpes simplex only one cases were seen 1.67% p>0.01.

Conclusion: Early initiation of HAART (Highly active antiretroviral therapy), maintenance of better CD4 count, lack of malnutrition and cleanliness are the important factors to be taken care in HIV-infected children's. The most common dermatological manifestation seen is Hz, nail pigmentation and scabies.

Keywords: Hz –Herpes Zoster, HAART, CD4, RNA Plasma Viral Load.

Introduction

Skin disorders are commonly encountered in HIV-infected patients, and they may be the first manifestation of HIV disease. Up to 90% of HIV-infected persons suffer from skin diseases during their course of illness.[1] In a local cross-sectional study of 186 HIV positive patients, 175 (94%) suffered from one or more cutaneous disorders.[2] The most common skin disorder identified was fungal infection, followed by eczema and seborrhoeic dermatitis.[3] The advent of HAART has changed the spectrum of skin disorders by improving host immunity, which in turn reduces the occurrence of Kaposi's sarcoma and some of the skin infections.[4] However, the restoration of immunity may cause flare-up of herpes zoster. HIV-infected patients are more likely than the general population to suffer from adverse drug reactions. Skin diseases are rarely life-threatening, but many of

them are life-ruining. While the lifespan is prolonged by the use of HAART, many HIV-infected patients are troubled by drug-induced facial lipoatrophy. Not only can there be cosmetic disfigurement, the intense pruritus due to eosinophilic folliculitis may severely impair the patients' quality-of-life. Therefore, management of these apparently minor conditions should not be overlooked. In most cases, treatment modality of skin diseases in HIV-positive patients is similar to that in HIV-negative ones. However, prolonged high-dose systemic steroid should be used with caution because of the immunosuppressive effects. Although phototherapy can alleviate pruritus or improve psoriasis in HIV-infected patients, its use is hampered by its upregulation of HIV transcription.

Materials and Methods

An observational study was conducted at Department of dermatology and Venerology, KIMS Bengaluru during the period 2014-2015. PLHIVs who are received on 'HAART' with the age group 20-55 years were considered for the study population. The following inclusion and exclusion criteria were taken into consideration. Inclusion; Patients with reliable dermatological complications age group 20-55 years, family history and other associated parameters were included. Exclusion; Patients who are not regular follow up of HAART, treatment lost to follow up, ART treatment has received outside and congenital anomalies were excluded from the study population The demographic profile, patient history, and treatment follow-up records were recorded in a separate master chart by using pretested questionnaires. The final outcomes like morbidity, mortality, complications were correlated between age and sex matched frequency respectively. Sample size determination derived based on the following formula

$\mathbf{n=\frac{p}{q} x \frac{1}{\alpha^2}}$, Where, P= the treatment success and q= treatment failure has been fixed 0.20 and 0.80 respectively with desired level of significance 5% level ($\alpha = 0.05$)

$n=\frac{0.20}{0.80} x \frac{1}{0.05^2} = n = 150$ patients, The collected data was analysed by using SPSS -16.50 software version, the following statistical methods were used to test the hypothetical results. Univariate analysis, Receiver operating characteristic curve and Logistic regression analysis.

Results

Table 1: Descriptive statistics of HIV infected children

Parameters	No (%) n=150	P-Value
i. Gender		
Male	85(56.67%)	0.00
Female	65(43.33%)	0.00
ii. Age		
25 to 35 years	95(63.33%) 32.16±0.98	0.00
36 to 55 Years	55(36.67%) 42.18±1.25	0.00
iii. Family history		
Sero +VE infected	145(96.67%)	0.00
Sero -ve	05(3.33%)	0.23
Mean Duration of HAART(Months)	84.56±2.56	0.00

A total 150 patients were considered for the study population, the male comprises 56.67% and female comprises 43.33%; sex ratio 1.1. The mean age of the patient was 43.16 years. Age group between 20-35 years comprises 63.33% with mean age was

32.16 years and 36-55 years comprises 36.67% with mean age was 12.44 years respectively. Majority of the cases had family history 96.67%. The mean duration of HAART treatment was 84.56 months with SD 2.56 months. Family history $p<0.01$, mean duration of HAART $p<0.01$, age of patient $p<0.01$ were found to be statistically significant. As per the resulted findings lower economic status $p<0.01$, lack of literacy $p<0.01$ was significantly associated with geometric progression of HIV. The family history is the most signifying factors to increase the prevalence rate of dermatological complications in HIV-infected patients. Clinically the present study attempt to correlate WHO clinical staging and dermatological complications, The WHO stage 2- 25% $p<0.01$; stage 3- 30 % $p<0.01$ stage 4-55% $p<0.01$ will exhibits the complication irrespective of age and gender breakup. The Worsening of complications were seen in lower CD4 count and high RNA plasma viral load, the incidence was drastically increased during the inception of HAART up to two years of treatment follow up.

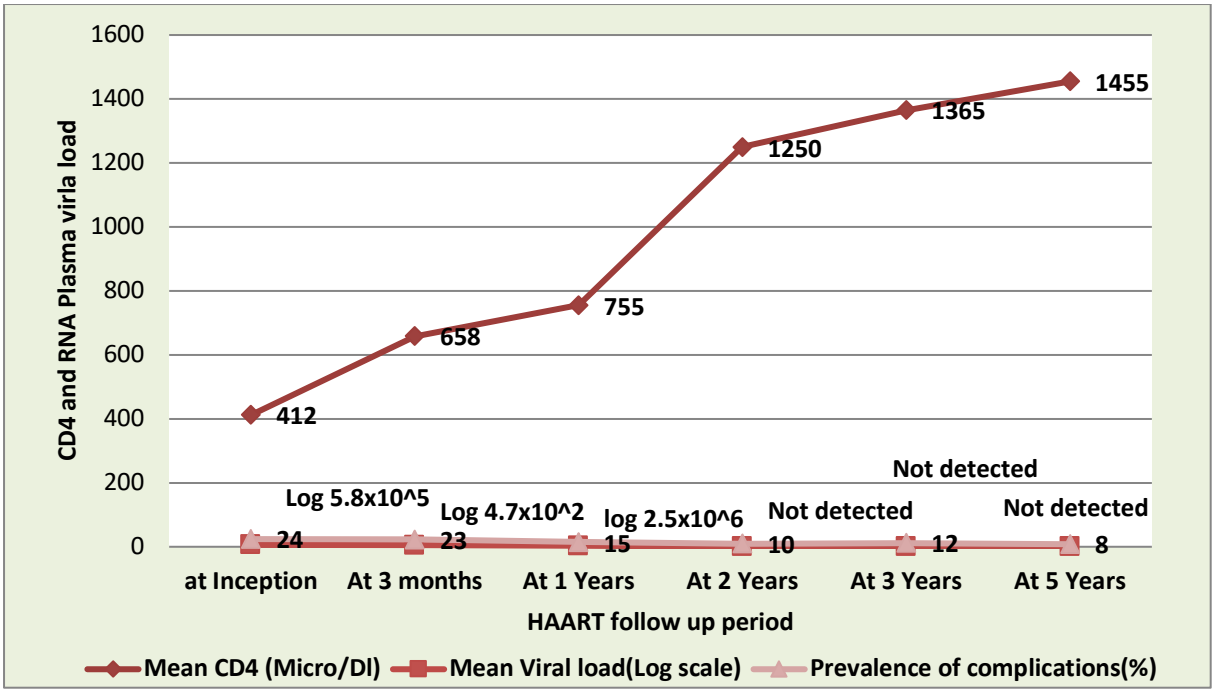

Figure 1: Dynamisms of CD4 and RNA plasma viral load on subject to dermatological complications

The dynamism of CD4 count and RNA plasma viral load presented in the figure1, the results revealed that, the mechanism of virus will debilitate in nature, an early stage, the virions is geometrically progressed in the human body and reduced the immunity of the child, resulted reduction of immunity, drastically the infected children will exhibits clinical and dermatological complications. Figure 1 is clearly depicted that, an early stage of infection or at the time of inception of HAART, CD4 counts were low, the mean cd4 count was 412 micro/Dl, CD4 follow-up at 3 months,12 months and 24 months, CD4 count is drastically increased with fewer RNA plasma viral load expression. At the time of inception of HAART, the prevalence of dermatological complications is numerically doubling with high plasma viral load.

Table 2 describes the various dermatological complications with respect to base line CD4 count and mean CD4 count at the end of the study period. The present study documented that, the various

prevalence of skin lesions in the age group 20-55 years of HIV infected patient was presented, the scabies is the most communist manifestations in the study population it was expressed 30.0% with mean CD4 count was 243 micro /Dl followed by Hz 16.67%; CD4 count was 247 micro/dl, Kaposi's sarcoma 1.33%; Drug eruptions 8.0%; Papular pruritic eruptions (4.67%); Nail pigmentations (8.0%) and Fungal infections- Candida 5.33 %; Lichenoid Eruption 3.33% and herpes simplex only one cases were seen 0.67%.

Table 2: Various dermatological complications (n=150)

Complications	No of cases	CD4 count at on set CD3:CD4%	Mean CD4 count	P-value
Herpes simplex	01(0.67%)	<25%	158	0.85ns
Herpes Zoster	25(16.67%)	35%	247	0.00**
Fungal infections: Candida,	08(5.33%)	<25%	236	0.08ns
Nail pigmentations	12(8.00%)	<25%	228	0.00**
Scabies	45(30.00%)	30%	243	0.00**
Kaposi's sarcoma	02(1.33%)	12%	142	0.57ns
Drug eruptions	12(8.00%)	18%	148	0.00**
Papular pruritic eruptions	07(4.67%)	31%	185	0.46ns

**, Significant at 1% level (p<0.01)

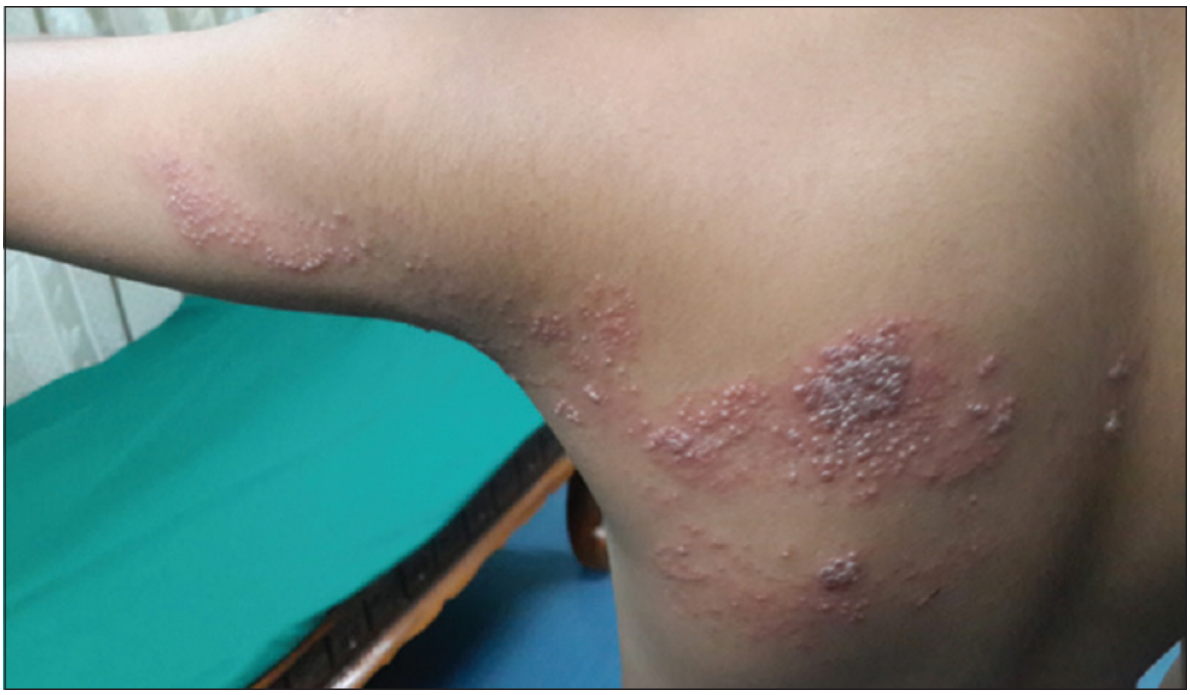

Figure 2: Herpes Zoster (CD4 247micro/dL)

Discussion

Although HIV-1 is particularly tropic for CD4 T lymphocytes, monocytes, macrophages and central nervous system cells that express cd4 receptors, abnormalities in humoral immunity may precedes the development of the more characteristics ones of cell-mediated immunity cells from HIV infected patients demonstrated polyclonal and hyper proliferations with hyper secretions of polyclonal immunoglobulins. The suppressor CD8 +lymphocyte usually

increase in number initially, resulting in a decrease of the normal CD4+ to CD8 +ratio, and are not depleted until late in the diseases. The most severely affected cells are the CD4 lymphocytes, whose function and numbers steadily decline as the disease progression and complications of skin lesions.CD4 cells are seriously impacted by HIV infection, As HIV infection progresses, skin diseases gradually become more aggressive and widespread throughout the body, with a higher rate of recurrence and refractory disease (14). Therefore, HIV/AIDS-related skin lesions are often important indicators for the clinician as to the presence of HIV infection and the development of AIDS. Some infectious Molluscum, Herpes Simplex, Herpes Zoster Pyoderma, Candidiasis, Scabies. Noninfectious, Xerosis, Hyperpigmentation, Lichenoid, Aphthous Ulcer, Papulopruritic were seen in patients with severe immunosuppression (CD4+ count, < 150/µl). Molluscum and xerosis was observed in patients at all stages of HIV infection with frequent recurrence of lesions and post-herpetic neuralgia. The extent and severity of recurrence was correlated with immune status where patients with clinical AIDS sometimes had disease in bilateral peripheral nerves. Historically, Hz was thought to be an indicator of an underlying malignancy, especially acute lymphatic leukaemia, whereas recent studies have shown no increase in the incidence of malignancy in children with Hz as reported in our study.

Conclusion

The overall study indicates that, the HIV infected children's are more easily susceptible to skin disorders with inception of HAART at lower CD4 count (< 200 µ/Dl). Clinical examination is very much required for HIV infected children as their immune systems drops. Early initiation of HAART, maintenance of better CD4 count, lack of malnutrition and cleanliness are the important factors to be taken care in HIV infected children's. The most common dermatological manifestation seen is Molluscum, Xerosis and Papulopruritic.

References

1. Pennys NS. Skin manifestations of AIDS. London: Martin Dunitz,1995.
2. Ho KM, Wong KH. Dermatologic manifestations in HIV disease. In Chan KCW, Wong KH, Lee SS, editors. HIV Manual. 2001; 231-245.
3. Raju PV, Rao GR, Ramani TV, Vandana S. Skin disease: clinical indicator of immune status in human immunodeficiency virus (HIV) infection. Int J Dermatol. 2005;44:646-9.
4. Chen TM, Cockerell CJ. Cutaneous Manifestations of HIV infection and HIV-related Disorder. In: Bolognia JL, Jorizzo JL, Rapini R, editor. Dermatology. Mosby. 2003; 1:78.
5. Ward HA, Russo GG, Shrum J. Cutaneous manifestations of antiretroviral therapy. J Am Acad Dermatol. 2002;46:284-93.
6. Kong HH, Myers SA. Cutaneous effects of highly active antiretroviral therapy in HIV-infected patients. Dermatol Ther. 2005;18:58-66.
7. Jung AC, Paauw DS. Diagnosing HIV-related disease: using the CD4 count as a guide. J Gen Intern Med. 1998; 13:131-6.
8. Breuer-McHam J, Marshall G, Adu-Oppong A, et al. Alterations in HIV expression in AIDS patients with psoriasis or pruritus treated with phototherapy. J Am Acad Dermatol. 1999;40:48-60.
9. Bartlett JG, Gallant JE. Medical Management of HIV Infection. 2004.
10. Ungpakorn R. Cutaneous manifestations of Penicillium marneffei infection. Curr Opin Infect Dis. 2000; 13:129-34.
11. Weinberg JM, Mysliwiec A, Turiansky GW, Redfield R, James WD. Viral folliculitis. Atypical presentations of herpes simplex, herpes zoster, and

molluscum contagiosum. Arch Dermatol. 1997;133:983-6.
12. Hengge UR, Tietze G. Successful treatment of recalcitrant condyloma with topical cidofovir. Sex Transm Infect. 2000;76:143.
13. Dauden E, Fernandez-Buezo G, Fraga J, Cardenoso L, Garcia-Diez A. Mucocutaneous presence of cytomegalovirus associated with human immunodeficiency virus infection: discussion regarding its pathogenetic role. Arch Dermatol. 2001;137:443-8.
14. Toutous-Trellu L, Abraham S, Pechere M, et al. Topical tacrolimus for effective treatment of eosinophilic folliculitis associated with human immunodeficiency virus infection. Arch Dermatol. 2005;141:1203-8.