Patterns of Mucocutaneous Disorders in HIV-seropositive Patients and Relations with CD4 Counts at Sanglah General Hospital, Denpasar, Bali

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Abstract

Background: It is well known that more than 90% of HIV-infected patients will develop at least one type of dermatologic disorder during their HIV infection. As a result of the acquired immunodeficiency or the effect of the treatment, with an increased risk infectious skin condition which caused by viral, bacterial, and fungal infections, as well as inflammatory skin disease, have all been reported to increase as CD4+ T cells depleted.

Objective: Our purpose was to evaluate the cutaneous manifestation in HIV/AIDS patients in dermatology-venereology polyclinic, Sanglah Hospital Denpasar.

Subjects and Methods: Data was collected from medical records of HIV/AIDS patient whose came to the dermato-venereology department, Sanglah Hospital period 2007-2009.

Results: During the three years period, noted 260 HIV/AIDS patients with cutaneous manifestation, 183 males, and 77 females. Those patients mostly in the age group 21-30 years old. Five most common cutaneous manifestation was condyloma acuminate for 59 patients (22,7%), dermatitis 27 patients (10,4%), drug eruptions 26 patients (10,0%), prurigo 24 patients (9,2%) and seborrheic dermatitis 23 patients (8,8%).

Conclusion: Cutaneous manifestation in HIV/AIDS patients which dominated by males gender and age group 21-30 years old was very varied, in which the most common cutaneous manifestation is condyloma acuminate.

Keywords: Cutaneous manifestations, HIV/AIDS.

Introduction

Acquired Immunodeficiency Syndrome (AIDS) is a group of symptoms that arise due to decreased immune system acquired, caused by Human Immunodeficiency Virus (HIV). HIV (Human Immunodeficiency Virus) is a retrovirus belonging to the RNA virus (Ribonucleic Acid), a virus that uses RNA to encode its genetic information. This virus has a reverse transcriptase enzyme that is useful for converting RNA to DNA inside the cell nucleus so that the virus can replicate.

HIV attacks cells that are very important in the human immune system and cause the immune system is unable to fight viral and bacterial infections that should not cause disease in humans with a healthy immune system. HIV / AIDS kills 18,560 Indonesians by 2015, an increase of nearly six-fold since 2005. The number of people living with HIV in Indonesia has increased from 146,560 to 440,510 over a period.

This virus attacks and damages the CD4+ T lymphocyte cells so that the patient’s immunity greatly reduced so that the patient is susceptible to various infections. AIDS is not a disease only but is a symptom of disease caused by infection with various types of microorganisms such as bacterial, viral, fungal, and even malignant infections due to decreased endurance of the patient.
Severity for immunosuppression based on CD4 count is as follows; Not significant immunosuppression when CD4 > 500/mm³, mild Immunosuppression when CD4 350-499/mm³, moderate Immunosuppression 200-349/mm³, and Severe Immunosuppression when CD4 <200/mm³.

It is now widely known that more than 90% of HIV-infected patients will have one or two types of skin disorders during their illness resulting from immunodeficiency conditions due to HIV infection or due to antiviral drug therapy.

Viral, bacterial and fungal infections, as well as inflammatory skin diseases, reported prevalence increases with decreased CD4+ T cell count counts. The spectrum of skin manifestations in HIV/AIDS is very wide and varied, closely related to the stage of HIV infection of the patient. Because the dermatologic manifestations in seropositive patients are often heavier, atypical, and less responsive to therapy than non-HIV-infected patients, it is important for physicians to be alert to these differences.

This study aims to observe skin manifestations associated with immunosuppressed severity in HIV seropositive patients at Sanglah Hospital Denpasar.

Subjects and Methods

This study is a case-series study with a retrospective approach, by reviewing the medical records of HIV-seropositive patients who visited the Sanglah Hospital's dermatovenerology polyclinic during a 3-year period, between 2014-2016. Diagnosis of HIV-seropositive by observing the results of blood Elisa examination for HIV. Manifestations of skin and sexually transmitted diseases (STDs) performed by anamnesis, physical examination, and investigation related to suspected diagnosis. The data collected were grouped into skin diseases, patient age and patient’s gender, and CD4 count.

Results

During the 3-year period, 76 peoples with HIV-seropositive were referred to the Polyclinic of Dermato-venerology by VCT Unit of Sanglah Hospital, with various skin manifestations. Skin diseases suffered based on typical clinical features, and investigations such as Gram-inspection, leukorrhea examination, KOH examination for dermatosis and other investigations. Each patient not only experiences one type of skin disorder but can suffer 2-3 manifestations of skin disorders, so that can find 89 types of skin manifestations. All cases recorded for sex, age, history of sexual behavior, contact history, duration of an HIV-seropositive detection, and CD4 count; with category a. <200 cells/µL, b. >200-500 cells/µL and c. >500 cells/µL. More detail can be seen in the following table below.

Table 1: General Characteristic of 76 HIV-seropositive Patients

<table>
<thead>
<tr>
<th>Age in years</th>
<th>Cases (%)</th>
<th>Gender Distribution</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Male (%)</td>
</tr>
<tr>
<td>&lt; 14</td>
<td>5 (6.58)</td>
<td>4 (5.26)</td>
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<tr>
<td>15–29</td>
<td>17 (22.34)</td>
<td>13 (17.11)</td>
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<tr>
<td>30–39</td>
<td>29 (38.16)</td>
<td>15 (19.74)</td>
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<tr>
<td>&gt; 40</td>
<td>25 (32.89)</td>
<td>14 (18.42)</td>
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<thead>
<tr>
<th>Residence</th>
<th>Cases (%)</th>
<th>Gender Distribution</th>
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<tr>
<td></td>
<td></td>
<td>Male (%)</td>
</tr>
<tr>
<td>Urban</td>
<td>49 (64.47)</td>
<td>31 (40.79)</td>
</tr>
<tr>
<td>Rural</td>
<td>27 (35.53)</td>
<td>15 (19.74)</td>
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<thead>
<tr>
<th>Occupations</th>
<th>Cases (%)</th>
<th>Gender Distribution</th>
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<tr>
<td></td>
<td></td>
<td>Male (%)</td>
</tr>
<tr>
<td>Government servants</td>
<td>14 (18.42)</td>
<td>5 (6.58)</td>
</tr>
<tr>
<td>Farmers</td>
<td>11 (14.47)</td>
<td>4 (5.26)</td>
</tr>
<tr>
<td>Business</td>
<td>18 (23.68)</td>
<td>4 (5.26)</td>
</tr>
<tr>
<td>Drivers</td>
<td>33 (43.42)</td>
<td>33 (43.42)</td>
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<tr>
<th>Educational status</th>
<th>Cases (%)</th>
<th>Gender Distribution</th>
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<tr>
<td></td>
<td></td>
<td>Male (%)</td>
</tr>
<tr>
<td>Illiterate</td>
<td>16 (21.05)</td>
<td>11 (14.47)</td>
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Other skin manifestations include superficial fungal infections (13 patients), syphilis (12 patients), herpes zoster (9 patients), genital herpes (9 patients), balanulcers (9 patients), pyoderma (8 patients), herpes simplex labial (4 patients), Verruca
Vulgaris (4 patients), varicella (4 patients), scabies (3 patients), vaginal candidiasis (2 patients), genital ulcers (2 patients), gonorrhea urethritis (2 patients), ecthyma (2 patients) Molluscum contagiosum (2 patients), non-gonococcal urethritis (2 patients), orchitis (1 patient), insect bites (1 patient), urticaria (1 patient), balanitis (1 patient), scrofuloderma (1 patient), antibrachial abscess (1 patient), melanoderma (1 patient), Pemphigus Vulgaris (1 patient), candida stomatitis (1 patient), Blackheads acne (1 patient), and Bartolini abscess (1 patient).

Based on the gender distribution of HIV/AIDS patients with the manifestations of skin disorders that came to Polyclinic of Dermato-venerology of Sanglah Hospital, the dominant occurred in males, with the male: female ratio of 2.3:1 which can be seen in the following table. Based on the distribution of age group of HIV/AIDS patients with manifestations of skin disorders coming to the Polyclinic of Dermato-venerology of Sanglah Hospital, the dominant occurred in the age group 21-30 years which can be seen in the following table.

**Discussions**

The case of AIDS first reported in the USA in 1981 and within a period of 10 years has spread almost to all countries in the world. Indonesia itself first reported a case of AIDS in 1987 from a foreign tourist in Bali. By the end of 2005, it estimated that HIV/AIDS infection had reached 90,000-130,000 cases. According to the Ministry of Health of Indonesia, through surveillance of HIV/AIDS, the behavior and various results of the study in the field concluded that the potential threat of the epidemic of HIV / AIDS tends to increase.⁴

Over a three-year period, HIV/AIDS patients with manifestations of skin disorders that come to Polyclinic of Dermato-venerology of Sanglah Hospital is 260 people out of total visits, 2007, 2008 and 2009 respectively are 57 peoples, 80 peoples and 123 peoples with various manifestations of skin disorders.

Based on the distribution of sex and age group of HIV/AIDS patients with the manifestations of skin disorders coming to the Polyclinic of Dermato-venerology of Sanglah Hospital, the dominant occurred in males, with a male: female ratio of 2,3:1 with predominance occurring in Age group of 21-30 years.

Based on the distribution of manifestations of skin disorders, the most frequencies were condyloma acuminate of 59 patients (22,7%), dermatitis 27 patient (10,4%), drug eruption 26 patient (10,0%), prurigo 24 patient (9,2%), Seborrhoeic dermatitis 23 patients (8.8%).

HIV causes a deficiency in cellular immunity characterized by loss of T-helper lymphocytes (CD4 cells). Most infections and neoplastic skin processes in HIV patients are altered and facilitated by immune system CD4 cell loss. Persistent viral replication arises in lymphoid organs during HIV infection.

Chronic stimulation of the immune system leads to activation that is incompatible with the progressive saturation of the immune response. Lymphoid tissue damage causes severe damage to the ability to sustain the effectiveness of the HIV-specific immune response on an ongoing basis and to generate an immune response against new pathogens. Epidermal Langerhans cells may become infected by HIV; Decreased function of Langerhans cells may be responsible for some skin manifestations of people with HIV.¹

Condyloma acuminate is an opportunistic infection in HIV / AIDS patients, often occurs in HIV stages 2, 3 and 4. This disease is a sexually transmitted disease in the form of benign proliferation of skin or mucosa caused by HPV infection (Human Papilloma Virus).⁵

This condition often occurs during HIV disease and is one of the most common skin manifestations in HIV/AIDS patients. Interestingly, the incidence of infection by HPV does not decrease with HAART (Highly Active Antiretroviral Therapy) and improvement of the immune system even the incidence may increase.

There appears to be a complex interaction between HIV, HPV and the mechanisms of mucosal immunity. HIV increases HPV transcription and regulates HPV E7 which...
affects cellular differentiation that will lead to high HPV DNA in the tissues. Also, HPV causes a decrease in the number of local macrophages, Langerhans cells and CD4 cells as well as disruption to local cytokine production resulting in impaired local immunity control of HPV infection. From the distribution of skin manifestations in HIV/AIDS patients in Sanglah Hospital, most distribution is a condyloma acuminate as many as 22.7%.

The second highest skin manifestation in HIV / AIDS patients coming to Polyclinic of Dermato-venerology of Sanglah Hospital is dermatitis.

Dermatitis here includes the most common allergic contact dermatitis, followed by neurodermatitis, atopic dermatitis, intertriginous dermatitis and static dermatitis. HIV patients who have low CD4 cell counts do not decrease their ability to experience allergic contact dermatitis. Whereas the role of effector in IV slow type of hypersensitivity reactions mediated by CD4 T lymphocytes, wherein allergic contact dermatitis shows that CD4 T-lymphocytes have a role as suppressors, whereas CD8 T lymphocytes have an effector role.7

Patients with HIV-positive compared with HIV-negative ones have an increased frequency of skin manifestations due to drug reactions.8 These drug eruptions may be mild to severe, such as Steven Johnson and erythema multiform syndromes. Clusters of patients with very low CD4+ cell count (usually <50/μL) show reactions to almost all drugs given, including antibiotics and antiretroviral.

Because of the low CD4 count cell count, these patients require antiretroviral and prophylactic antibiotics, so that the risk for drug reactions is higher.9,10 The mechanism responsible for the increased susceptibility to drug eruption is an increased susceptibility of T cells and/or decreased Hepatic metabolism of the drug as a secondary consequence of glutathione deficiency.8

Purpura is a papule, chronic and bush-shaped disease especially in the extensor extremity, more common in HIV/AIDS patients with CD4 + cell counts below 50μL and patients with colored skin.4,7 Patients complain Itching that cannot overcome with antihistamines. Over the years, this condition is difficult to overcome and described as "pruritic eruption from HIV".11 Seborrheic dermatitis occurs in 3% of the general population and more than 50% of patients with HIV infection. The prevalence and severity of seborrheic dermatitis increased in proportion to the decrease in CD4+ cell count. In HIV-infected patients, seborrheic dermatitis may be exacerbated by infection with pityrosporum, a yeast-like fungus; The use of topical antifungal agents has recommended in cases refractory to standard topical therapy.11

One of the manifestations of skin disorders found is Morbus Hansen (leprosy). It is interesting to note that the cellular immunity system greatly influences the disease picture of the disease. If the cellular immunity system well established, then the pattern of leprosy will be the tuberculoid type, on the contrary, if the cellular immunity system fails to form then the leprosy disease leading to the lepromatous type. Lepromatous-type leprosy tends to be more severe and more contagious.12 In patients with HIV/AIDS in which there is suppression of the cellular immune system then, if this patient also has leprosy infection, surely this patient will have a more severe and highly infectious clinical picture for the people around them.

Based on the gender distribution of HIV / AIDS patients with the manifestations of skin disorders coming to the Polyclinic of Dermato-venerology of Sanglah Hospital, the dominant occurred in males, with a male: female ratio of 2.3: 1. HIV can found in liquid semen, vaginal fluid, cervical fluid.

The virus will be concentrated in semen, especially if there is an increase of lymphocytes in the fluid, as in the state of genetic inflammation such as urethritis, epididymitis, and other disorders associated with sexually transmitted diseases.

Transmission of HIV infection through anal intercourse is easier because there is only a rectal mucous membrane that is thin and easily torn, anus often occurs lesions. In per vaginal sex contact, the possibility of HIV transmission from male to female estimated
at 20 times greater than that of women to men. This phenomenon is due to prolonged exposure to HIV to the vaginal mucosa, cervix, and endometrium with infected semen. In 2006, there were an estimated 5.3-8.7 million people at high risk of contracting HIV with the greatest number being male sex procurement customers, an estimated number of more than 3.5 million. The men are estimated to have a couple as many as 2 million people. In a study conducted at Dr. Soetomo Hospital in people with HIV/AIDS from 1989-2006 obtained the majority of patients is male.4

Based on the distribution of age group of HIV/AIDS patients with manifestations of skin disorders coming to the Polyclinic of Dermato-venereology of Sanglah Hospital, the dominant occurred in the age group of 21-30 years. The age group of 21-30 years is the active sexual age, so the incidence of HIV/AIDS in this group is highest. Sexual contact is one of the major means of transmitting HIV other than horizontally, i.e., intercurrent contact or infected blood products, and vertically from HIV-infected mother to child (during pregnancy, pregnancy, breastfeeding).4 In this retrospective study, HIV/AIDS in the age group above 60 years, it is interesting to note that this group is no longer sexually active and possibly as an intravenous narcotics user also decreased. In a study conducted in the United States, it found that blood transfusions and contamination with blood containing HIV viruses have a large role in HIV/AIDS cases in patients over 50 years of age. It also said that in elderly patients (geriatrics) there is often a dementia disorder that causes a decrease in social control that may result in risky sexual behavior and use of intravenous narcotics.13

Conclusions

Retrospective studies have performed of HIV/AIDS with skin lesions patients that came to the Polyclinic of Dermato-venereology of Sanglah Hospital for the period of 2007 -2009 with the result of varied skin manifestations, in which most skin manifestations were condyloma acuminata. There is an increasing number of HIV/AIDS patients with skin manifestations coming to the Polyclinic of Dermato-venereology of Sanglah Hospital from year to year. Regarding the most ages of active sexual age (age group 20-30 years) with the gender of men dominantly.

References

1 Who case definitions of hiv for surveillance and revised clinical staging and immunological classification of hiv-related disease in adults and children. World Health Organization 2007


