

## Screening of HIV Infection Among Prostitutes in Yogyakarta<sup>1)</sup>

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### INTISARI

Soedarmadi - *Skrining infeksi HIV pada WTS di Yogyakarta*

Sampai akhir tahun 1988 di Indonesia terdapat 3 penderita (2 orang asing, 1 orang Indonesia) mati karena AIDS, dan 9 penderita seropositif HIV. Mereka dijumpai di Jakarta, gerbang masuk utama orang asing, dan di Bali, tujuan utama wisata. Sebegitu jauh belum pernah dilaporkan adanya kasus AIDS di Yogyakarta sebagai tujuan wisata kedua.

Untuk mengetahui penyebaran epidemiologik infeksi HIV, telah dilakukan skrining pada WTS dan golongan risiko tinggi lain di Yogyakarta oleh team peneliti AIDS Fakultas Kedokteran UGM bekerja sama dengan Kantor Wilayah Departemen Kesehatan Daerah Istimewa Yogyakarta, dengan tes ELISA.

Skrining klinis maupun serologis pada 191 WTS tidak menemukan kasus AIDS, manifestasi lain infeksi HIV, maupun kasus seropositif HIV. Walaupun hasil ELISA negatif tidak harus berarti tiadanya infeksi AIDS; skrining ini merupakan langkah pertama dalam memantau penyebaran epidemiologi infeksi HIV. Peran faktor-faktor sosial dan perilaku yang terkait dengan kemungkinan hasil skrining negatif merupakan pokok bahasan yang dibicarakan.

*Key Words:* HIV - AIDS - ELISA - prostitute - venereology

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### INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) and other forms of human immunodeficiency virus (HIV) infections are now worldwide, major public health problems. The epidemiology of AIDS began in 1981 in the USA, though seroarcheologists tell us that the first evidence of AIDS antibodies in human sera can be demonstrated in specimens collected in Zaire in 1959 (Conant, 1987; Nunn & McAdam, 1987). WHO has stated that earlier cases of AIDS were found by retrospective analysis to have occurred in 1978 in the USA and in the late 1970s in Equatorial Africa and the Caribbean region (Anywo, 1987). Talking about AIDS usually referred to the initial definition developed by the Center for Disease Control (CDC) in the USA, which was developed before HIV was isolated and identified. Therefore AIDS is usually referred to patients with a life-threatening opportunistic infection such as pneumocystic pneumomonia or Kaposi's sarcoma. This definition varies from country to country and from population to population.

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The disease manifests itself differently in children; and in developing nations diseases such as diarrhea, esophageal candidiasis and wasting syndromes called "Slim's disease" in Africa are more commonly seen. Therefore, in 1985 WHO has adopted provisional clinical case definition for adult AIDS, which can be used for areas where diagnostic resources are limited (AIDS Action, 1987; Morrison, 1988). AIDS was detected for the first time in Indonesia in April 1987, when a foreign tourist died of AIDS in Bali. Until the end of 1988 there were only 3 AIDS patients (2 foreigners, 1 Indonesian), all were detected shortly before death, and 9 sero-positive patients in Indonesia (Gunawan, 1988). All of them were found by chance in Jakarta, the main gate for foreigners, and in Bali, the first tourist destination area. So far, AIDS has not been reported in Yogyakarta.

The numbers of cases of AIDS identified is only the tip of the epidemiological iceberg. Large number of patients infected with HIV have minor symptoms such as fatigue, weight loss, fever, lymphadenopathy, hairy leukoplakia and herpes zoster. These cases are referred to as AIDS-related complex (ARC), best defined as symptomatic infection with HIV without severe opportunistic infections or malignancy. About one-third of patients with progressive generalized lymphadenopathy (PGL) are at risk of developing AIDS. Furthermore, there are now millions of individuals in the world infected with HIV have no symptoms at all. This is the bottom of the epidemiological iceberg, that large number of patients, many of whom will someday develop ARC, and then many of them will someday develop AIDS. All these clinical spectra of infections can infect other people. Since most of the infected people are asymptomatic, and they remain potentially infectious, it is clear that screening the asymptomatic, HIV sero-positive individuals, is the only method to determine the infection status.

Diagnosis of HIV infection is based almost entirely on detection of antibodies to HIV. Rapid, sensitive and specific tests for the detection of antibody to HIV are now available. Most of the systems currently used are enzyme-linked immunosorbent assays (ELISA). These are the most widely used as the gold standard for diagnosing HIV infection at present, since under optimal laboratory conditions their sensitivity and specificity are at least 99% (WHO, 1987; Mortimer, 1988).

HIV has been detected and may be present in all body fluids, secretions and excretions, but extensive research implicates only blood, semen and vaginal secretions in the transmission of HIV. Therefore, HIV is mainly transmitted sexually, and so it is clear that AIDS is now one of the Sexually Transmitted Diseases (STDs). The person-to-person transmission of HIV, similar to the other STDs, is dominated by the role of the apparently healthy yet infected person ("carrier"). The main source of STDs in developing countries is usually the female prostitute, and HIV seroprevalence rates among African female prostitutes are now ranging from 25 to 90% (Mann, 1987).

As prostitutes are the main high risk group, and because of the sensitive nature of STDs, especially AIDS, and the fear of discrimination and stigmatization due to participation in such a small city like Yogyakarta, clinical screening and analysis of negative result was only done on formal prostitutes. Using the WHO's provisional clinical definition for adult AIDS, screening of AIDS patients were done to find out AIDS and other manifestation of HIV infections. To determine the possible existence of HIV sero-positive patients sero-screening were also done

to all of them. This screening provided the first step in monitoring the epidemiological spread of HIV infection in Yogyakarta as the second tourist destination area, done by the AIDS Research Team of the Gadjah Mada University Faculty of Medicine.

## **MATERIAL AND METHOD**

Screening was performed in April 1988 on 191 local prostitutes in Yogyakarta. Using provisional WHO clinical case definition for adult AIDS, all the inhabitants of a prostitution complex were examined to find AIDS and other manifestations of HIV infection among them.

The provisional WHO clinical case definition of adult AIDS are:

1. Adult AIDS is defined by the existence of at least two major signs associated with at least one minor sign, in the absence of other known causes of immunosuppression such as cancer or severe malnutrition or other recognised etiologies.

Major signs:

- a. Weight loss (10 per cent of body weight)
- b. Chronic diarrhea for longer than one month
- c. Prolonged fever for longer than one month (intermittent or constant)

Minor signs:

- a. Persistent cough for longer than one month
  - b. Generalised pruritic dermatitis (itching and inflamed skin)
  - c. Recurrent herpes zoster
  - d. Oropharyngeal candidiasis
  - e. Chronic progressive and disseminated herpes simplex
  - f. Generalised lymphadenopathy.
2. The presence of generalised Kaposi's sarcoma or cryptococcal meningitis is sufficient for the diagnosis of AIDS:

Clinical examination was performed on the local prostitutes, and ELISA test was done in two referral laboratories, using macro-ELISA of Roche and micro-ELISA of Wellcozyme. Crossed tests were also done on all of the participants.

## **RESULT AND DISCUSSION**

AIDS as well as other manifestations of HIV infection have not been found by clinical screening using the WHO's provisional clinical case definition for adult AIDS. The result of the ELISA test in the two referral laboratories among 191 prostitutes also showed negative results in all of them.

Since HIV infection precedes the development of AIDS by several years, an optimal understanding of current patterns of AIDS must be based upon an analysis of both HIV sero-prevalence data as well as reported AIDS cases. From such analysis WHO has distinguished three broad yet distinct patterns of AIDS in the world (Chin & Mann, 1988). Indonesia and other countries in Asia are included in the pattern III areas, where HIV was introduced in the early to mid-1980s and only small numbers of AIDS cases have been reported. Cases have generally occurred in persons who have travelled to pattern I or II areas, or who

have had sexual contact with individuals from such areas. Although the incidence of AIDS and HIV infection in South East Asia are small compared to figures elsewhere, there is yet no guarantee that some day it will not spread in this region. Therefore, it is important to monitor the epidemiological spread of HIV infection. The high risk groups of HIV infection have been predominantly sexually active individuals with multiple sexual partners, though, many people still have the fallacy that AIDS is exclusively a gay disease. An important epidemiologic fact had been overlooked in San Fransisco; the city with roughly 20% gay population and 25% Asian population has had a strikingly low number of AIDS among the Asians; it was in Europe that we first began to see data as early as 1983 which clearly demonstrated that this disease can be heterosexually transmitted (Conant, 1987). Some years ago most cases of AIDS in Haiti were male homosexuals, but now 80% are heterosexually acquired (Sabatier, 1987). In Yogyakarta, as the second tourist destination area, however, no AIDS cases have been found so far. Homosexual practices and drug abusers as blood transmitters are limited in this area. So, heterosexual contact is the most probable transmission of HIV infection. Therefore, analysis of screening among prostitutes as the main source of STD is the only method to determine the HIV infection status.

The integration of genetic material following a retrovirus infection probably persists throughout the life of the infected host. Antibodies to core and envelope antigens of HIV usually appear several weeks or months after infection. Only low levels of neutralizing antibodies develop, however, which partly explain why the blood of seropositive individuals remain potentially infectious. The presence of antibody to HIV, therefore, implies continued presence of the virus rather than the immunity, and is indirect evidence of infection.

The absence of antibody, however, does not exclude the presence of the virus; a small percentage of patients from whom virus has been grown lack in specific antibody (Welch, 1986). The lag period between infection and seroconversion usually occurs within two months, but seroconversion of many months or even years after infection has been reported (Mortimer, 1987; Morrison, 1988). Occasionally, seroconversion takes place after the development of PGL. It is estimated that, at any given time, no more than 98% of people infected with the virus will have detectable antibodies (Bradbeer, 1986). Another reason for false negative results is that antigenic variation in HIV can occur *in vivo*. The antigenic variation of different isolates and the poor production of neutralizing antibodies, may hamper the development of an effective vaccine (Welch, 1986).

Because of high sensitivity, ELISA is now a gold standard as means of diagnosing HIV infection. In ELISA the antibody is linked to an enzyme that is activated, producing colour from a special substrate, if an antigen-antibody reaction takes place. As the viral envelope includes some antigen derived from the host cell, a positive result may reflect the presence of antibodies rather than the virus. This is uncommon, but a positive result should be confirmed by another method, because some false positive reactions are inevitable and erroneous result will be given unless all reactive specimens are retested. Allowance should also be made for the frequently detected false antibody positives due to cross reactivity with autoantibodies and in malaria (Anywo, 1987). A confirmatory test most widely used now is western blotting. It is a method for detecting specific antibodies to HIV proteins, that have been separated in a gel according to their

electrophoretic mobility and transferred to strips of nitrogen paper. It is, however, too complex and time consuming to be used as a firstline test.

Not all individuals will have developed antibodies and follow-up is therefore needed, especially if early infection is suspected. False-negative results can arise due to human error unless great care is taken with specimen identification and laboratory procedures. The impressive levels of accuracy in excess of 99% will much depends on the context in which the assays are being used, and any overall figure is likely to be misleading. In unfavourable conditions and in the hands of unskilled staff, accuracy will of course be diminished.

Despite of lack in experience, as ELISA for HIV is done for the first time, this screening is the first step and important event in monitoring the possibility of HIV spread in Yogyakarta as the second tourist destination area. True negative result of the antibody screening test among prostitutes in Yogyakarta is still the most probable evidence. Contact between prostitutes with foreigners or tourists is still limited, though indirect transmission might occur. Moreover, in any case HIV is not easy to catch; the virus is not robust and does not survive long outside the human body, it is very sensitive to heat and is destroyed by standard desinfectants normally recommended for inactivation of hepatitis B virus (Anywo, 1986). Some epidemiologists estimate the likelihood of HIV transmission during a single heterosexual encounter to be quite low, possibly less than one percent per contact (Sabatier, 1987).

As other developing countries, especially oriental countries, the double standard in sexuality still exists. Moreover, most of the people in these areas, especially in Yogyakarta, still have fewer sexual partners and are more faithful to a sexual partner. In Yogyakarta traditional cultural heritage is still prominent, and most of the population have a strong religious background. These conditions prevent the people in those types of sexual practices which place them in high risk STDs including AIDS or HIV infection.

## CONCLUSION

Indonesia promotes tourism as the main source of national income second to natural oil and gas. In Yogyakarta, the second tourist destination area, one year after the first entering of AIDS into Indonesia, there are no AIDS nor other forms of HIV infections nor HIV sero-positive cases are found. Factors associated with the absence of AIDS patients and the negative results of the antibody screening have been discussed. Socio-behavioural factors seem to play an important role.

## SUGGESTION

A second screening at least 2-3 months later is needed. A single negative test result means nothing, because the window period is still the main factor as the cause of negative test result.

ELISA is the surest and cheapest HIV diagnostic procedure. The second larger scale of screening should be done involving the informal prostitutes or the "hospitality girls". They have higher risk of HIV infection, because they have much more chance in direct contact with foreign tourists than the formal prostitutes.

## ABSTRACT

Until the end of 1988 there were 3 patients (2 foreigners, 1 Indonesian) who died of AIDS in Indonesia, and 9 HIV sero-positive patients. They were found in Jakarta, the main gate of entrance of foreigners, and in Bali, the first tourist destination area. So far, there have been no AIDS cases reported in Yogyakarta, the second tourist destination area. Therefore, it is important to determine the epidemiological spread of HIV infection.

To know the epidemiological spread of HIV infection, screening has been done among prostitutes, and the other high risk groups in Yogyakarta. Clinical examination has been done using WHO's clinical case definition for adult AIDS to find out AIDS cases among them. And an ELISA screening test was also done to find out asymptomatic HIV infection among them.

Clinical examination as well as seroscreening among 191 prostitutes had not found AIDS and other clinical manifestations, nor HIV sero-positive in all of them. Though, the negative result of ELISA does not mean the absence of HIV infection, it is the first step in monitoring the epidemiological spread of HIV infection. The role of socio-behavioural factors associated with the negative result is also discussed.

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