

# PREVALENCE OF HTLV - III/LAV ANTIBODY IN SELECTED POPULATIONS IN THAILAND

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## INTRODUCTION

As of September 1985, a total of five cases of Acquired Immuno-deficiency Syndrome (AIDS) who meet the case definition promulgated by the Centers for Disease Control (CDC) in Atlanta have been reported to public health officials in Thailand (CDC, 1985a; TMPH, 1984, 1985). Two patients, both of whom have died of AIDS, were Thai nationals. One of these Thais never travelled outside the country, and is the sole case confirmed to have been infected in Thailand.

An increasing prevalence of antibodies to human T-lymphotropic virus type III/lymphadenopathy-associated virus (HTLV-III/LAV) -- the agent of AIDS -- has been shown in seroepidemiologic studies to correspond with an increasing incidence of clinical AIDS in high risk populations (CDC, 1984; Landesman *et al.*, 1985).

In order to determine the extent to which this virus is already circulating in Thailand, we studied the prevalence of antibody to HTLV-III/LAV in unselected blood donors, and in five additional populations who probably had a greater than normal risk to acquire the infection: (1) male prostitutes, (2) female prostitutes, (3) male venereal disease patients, (4) parenteral drug abuse

clinic attendees, and (5) thalassemia patients who received multiple transfusions.

## MATERIALS AND METHODS

A total of 600 individuals in Bangkok were studied during the period from February to June 1985. Sera was taken from units of blood donated by 100 consecutive volunteer blood donors (88 males, 12 females) from 12 to 18 February 1985 at the Blood Bank of the Siriraj Hospital.

Sera was collected by venipuncture from 101 male homosexual prostitutes working in and around the Patpong and Sukhumvit Soi 9 bar areas (from 21 May to 5 June), from 100 consecutive female prostitutes attending the Venereal Disease Department VD clinic at Bangrak (1 to 2 May), from 100 consecutive male patients (predominantly heterosexual) presenting at the Venereal Disease Department Tha Rua VD clinic in Klong Toey (7 to 10 May), from 99 parenteral drug abusers attending the outpatient clinic of Thanyarak Hospital for Drug Addiction in Rangsit district (17 to 25 May), and from 100 patients with thalassemia attending the Thalassemia Center clinic of Mahidol University (2 April to 1 June).

All study participants other than the blood donors were (1) informed in writing of the purpose and nature of the study, (2)

advised that participation was voluntary and would not affect the services or treatment they were entitled to, (3) promised that the results of testing would be provided to them in confidence at the address they provided, (4) offered retesting and referral to a specialist physician for counselling for those with positive tests, and (5) required to sign a consent form for participation in the study.

Questionnaires were administered by the investigators to all participants (except the blood donors and thalassemia patients) to collect information on age, sex, address, occupation, history of previous illness including venereal disease, blood donation or transfusion, drug addiction, and sexual behavior and practices.

Sera was tested for antibody to HTLV-III/LAV by enzyme-linked immunosorbent assay (ELISA) using commercial kits (Abbott Laboratories, North Chicago, Illinois 60064 USA). Positive controls for the ELISA testing varied from optical densities (OD) of 0.401 to 0.530. Negative controls had ODs from 0.018 to 0.035. The cutoff levels for a "reactive test" were about OD 0.055. Specimens repeatedly reactive by ELISA were tested by Western Blot technique (Tsang *et al.*, 1983) at the CDC, Atlanta, USA.

## RESULTS

The results are summarized in Table 1. One (1%, confidence limit 95% : 0.03-5.4%) of the 101 male homosexual prostitutes was positive for antibody by ELISA (optical density [OD]: 0.730 and 0.576), which was confirmed by Western Blot with a positive reaction to the p25 antigen and a weak reaction to p41.

Two (2%) of the 100 thalassemia patients (both  $\beta$  Th-HbE) had repeated borderline reactivity on ELISA testing (patient 1 OD:

Table 1  
HTLV-III/LAV antibody prevalence,  
Thailand, 1985.

Study Group	No. tested	No. ELISA positive	No. Western Blot positive*
Prostitutes			
Male	101	1** (1%)	1 (1%)
Female	100	0	
Male VD patients	99	0	
Drug abusers	100	0	
Thalassemia patients	100	2***	0
Blood donors	100	0	

\* Only ELISA-positive sera tested by Western Blot.

\*\* Strongly reactive (optical density 0.730 and 0.576) on two independent ELISA assays done singly at different times.

\*\*\* Weakly reactive (OD patient 1: 0.136/0.089; patient 2: 0.147/0.173) on two independent ELISA assays done singly at different times.

0.136 and 0.089; patient 2 OD: 0.147 and 0.173), but were both negative on Western Blot.

The antibody-positive homosexual was a 20-year-old Thai male who had never travelled outside Thailand. On his pre-test questionnaire, he reported working as a homosexual prostitute for 12 months, compared to an average of 7.4 months (range 1 - 84 months) for the other 100 antibody-negative male prostitutes (average age 22 years, range 15 to 38 years).

He reported playing active and passive roles in rectal intercourse, oral-genital sex, and fisting (insertion of the hand or the finger into the partner's rectum), and a passive role in oral-anal sex. He denied blood transfusion, intravenous fluid, or illicit parenteral drugs during the previous 5 years.

His sexual history, reported at the time the blood was collected, estimated he had 10 sexual contacts with foreign males during the previous month, and 30 during the previous year. The 100 antibody-negative homosexuals reported an average of 2.6 foreign contacts in the previous month and 10.3 in the previous year. In addition, the positive homosexual reported sexual contact with 70 Thai males, 8 Thai females, and 1 foreign female in the previous year. Thus, his total number of sexual partners reported in the previous year was 109, compared to an average of only 50 among the 100 antibody-negative homosexuals.

### DISCUSSION

The 1% seroprevalence rate for antibody to the AIDS agent in the sample of active homosexual prostitutes in Bangkok's prominent red-light districts in 1985 suggests that infection with HTLV-III/LAV in Thailand appears to be still quite low among these high-risk persons with multiple foreign and Thai sexual partners. The small sample size, however, yields a 95% confidence limit for the true proportion from 0.03% to 5.4%. Although the sample was not selected randomly, it is probably fairly representative of professional homosexuals who have contact with foreigners in Thailand.

Infection with HTLV-III/LAV was still undetectable in the other groups tested. The two thalassemia patients with borderline positivity on the ELISA test were negative by Western Blot test, and probably represent nonspecific "false positive" reactions to the ELISA, as has been found in studies of large numbers of blood donors screened by ELISA (CDC, 1985b).

The seroprevalence rate in Thai homosexuals in 1985 is, however, similar to the rates of about 1% reported in sera collected from homosexuals in San Francisco in 1978 (CDC,

1984) and in Amsterdam in 1980 (Coutinho *et al.*, 1985) at the beginning of the AIDS epidemics in those cities. By 1984, the seroprevalence in the homosexual cohort in San Francisco increased to 65% (CDC, 1984).

The potential is present for the continued introduction of HTLV-III/LAV infection into Thailand. In 1984, 138,000 Americans and 411,000 Europeans visited Thailand (pers commun : Tourist Authority of Thailand). Moreover, spread within Thailand from the homosexual community to the heterosexual community may occur through blood donation and also because some homosexual prostitutes also have sexual contact with heterosexuals. Vigorous public health measures will be necessary to prevent the kind of rapid spread of the infection which has already occurred in the USA and Europe.

Members of high-risk groups, as well as the general population, need to be informed about the threat of AIDS and encouraged to adopt practices that might reduce the spread of this disease. They should be educated to (1) reduce the numbers of their sexual partners, (2) use condoms, (3) change their sexual acts to minimize the transfer of bodily fluids between sexual partners, (4) avoid sexual contact with AIDS cases, and (5) refrain from donating blood if they are prostitutes or have large numbers of sexual partners.

### SUMMARY

Antibody to the human T-lymphotropic virus, type III/lymphadenopathy-associated virus (HTLV-III/LAV) by ELISA test was detected in one (1%) of 101 male homosexual prostitutes (confidence limit 95%: 0.03-5.4%, in two (2%) of 100 thalassemia patients, and in none (C.L. 95% : 0-3.6%) of 100 female prostitutes, 99 parenteral drug abusers, 100 male VD patients, 100 consecutive blood

donors in serum collected from February through June 1985. Serum from the positive homosexual subject was strongly positive on repeated ELISA testing, and was also positive by Western Blot test. The two thalassemia patients, who were repeatedly weakly-positive by ELISA, were negative by Western Blot test and presumed to be false positive reactors. Prevalence of HTLV-III/LAV virus in sexually-active homosexuals in Thailand in 1985 appears to be similar to the 1% rate among homosexuals in San Francisco in 1978 at the start of the AIDS epidemic there.

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