HIV Infection among Substance Abusers in Thanyarak Institute on Drug Abuse, Thailand, 1987-2002

Viroj Verachai, MD, FRCPT*,
Tipwan Phutiprawan, BSc*, Pathom Sawanpanyalert, MD, DrPH**

** Department of Medical Services, Thanyarak Institute on Drug Abuse, Pathumthani*
*** Department of Medical Sciences, National Institute of Health*

A study of HIV infection among substance abusers from 1987 to 2002 was performed in Thanyarak Institute on Drug Abuse (TIDA). From 118,676 anti HIV tests (6,076-10,626 tests each year) of TIDA inpatients, 17,526 tests were positive (474-2,041 tests each year) In 71,403 new substance abuse cases (3,724-6,184 cases each year), 12,401 cases were positive (17.4%), highest in 1990 28.3% and then decreased to 8% in the last three years. In injecting drug users (IDU), the mean anti HIV positivity rate was 21.7% (range 19.2-29.4%) higher than those among non IDU about 8 times 2.8% (range 1.9-3.6%).

The HIV incidence rates were from inpatients that were previously anti-HIV negative, the authors found the mean incidence rate was 7.3% per year. Anti HIV positive cases were highest in injecting heroin users (IHU) about 36.8% (range 31.5-46.1%). Although numbers of IHU in Thailand have decreased in the last 6 years because of changing to use methamphetamine by smoking and dying from HIV subtype B′. The authors must continue the effective preventive programs of both avoid sharing injecting equipments and promoting 100% condom program to control this reservoir of HIV infection.

Keywords: *HIV infection, Substance abusers*

J Med Assoc Thai 2005; 88(1): 76-9
Full text. e-Journal: *http://www.medassocthai.org/journal*

Substance abuse is a major risk factor for infection with human immunodeficiency virus (HIV) that causes acquired immunodeficiency syndrome (AIDS). The risk of HIV infection among substance abusers is recognized in both injectors and non-injectors. HIV infection, as for hepatitis B and C viruses, among drug injectors is mainly blood-borne and transmitted through sharing of injecting equipment and paraphernalias[1,2]. However, non-injecting drug users are also at increased risks of HIV through other routes of transmission, e.g. sexual. In Thailand, the HIV subtype B′ among the substance abusers was shown in an early HIV epidemic to be associated with drug injection, while subtype E was associated with sexual transmission[3]. However, the proportions of HIV subtypes B′ and E among drug users in Thailand have been changing with subtype E becoming more and more prevalent[4,5].

Correspondence to : Verachai V, Department of Medical Services, Thanyarak Institute on Drug Abuse, Pathumthani 12130, Thailand.

The present study reports the prevalence of HIV among substance users, both injectors and non-injectors, who attended the Thanyarak Institute on Drug Abuse (TIDA) in a northern suburb of Bangkok Thailand. It also includes data on HIV subtype distribution and new HIV seroconverters among these populations.

Setting

The Thanyarak Institute on Drug Abuse (TIDA) belongs to the Department of Medical Services of Thailand's Ministry of Public Health. This institute is located in a northern suburb of Bangkok, about 5 kms from the Bangkok International Airport. It was founded in 1967 (The former name is Thanyarak Hospital). The institute is the largest substance abuse facility in Thailand with an average of 4,500 out-patient cases per year and 5,500 admissions per year[6]. The institute uses comprehensive treatment programs for substance abusers including detoxification and cognitive behavior therapy (Matrix Program) for out-patients and therapeutic community for in-patients.

Material and Method

Data on in-patients who attended TIDA during August 1987 and January 2002 were abstracted from the institute's databases. The data include information on type of drug use, injection status, and previous history of treatment, HIV seropositivity, and HIV subtype.

The institute started HIV testing among its clients on a voluntary confidential basis in 1987. Anti-HIV tests were done in consenting substance abusers by using enzyme immunosorbent assay or EIA (Anti-HIV EIA, Roche Diagnostics, Switzerland). Sera reactive to EIA were also tested by gel particle agglutination or GPA assay (Serodia - HIV, Fujirebio inc., Japan). Sera were considered anti-HIV reactive if they were reactive to both tests. Anti-HIV reactive some sera were samplings for further subtyped by using peptide binding enzyme immunoassay[7] (PEIA). Data on HIV sub typing were available for the period 1990-2000.

Data were analyzed by year. The prevalence rates of HIV infection were calculated by type of substance abusers. In a given year, substance abusers with previous history of admission(s) to TIDA were identified. Cases with a previous history of admission(s) who were anti-HIV negative one or more years before this admission counted. These cases were either anti-HIV positive or anti-HIV negative at the current admission. The proportion of new HIV seropositivity among the cases in a particular year was then calculated. This proportion was used as a surrogate for HIV incidence rate among the substance abusers for a given year.

Results

From August 1987 to January 2002, there were 118,676 anti-HIV tests performed with the range of 6,076-10,626 tests per year. Of these tests, 17,526 tests were positive (474-2,041 tests per year), bringing the average proportion of anti-HIV seropositivity to 14.8% (range 0.96% in 1987-27.4% in 1989.

The HIV prevalence rates among substance abusers with and without a history of injecting drugs is very different. The mean anti HIV positivity rate in IDU (including former IDU) was 21.7% (range 19.2-29.4%) per year. the mean anti HIV positivity rate in non-IDU was 2.8% (range 1.9-3.6%) per year. The distribution of anti-HIV is shown in Table 1.

Fig. 1 shows the proportion of new HIV seropositivity among hospitalized substance abusers who were anti-HIV negative at least one year before this admission. The proportions were used as surrogates for HIV incidence rates. It can be seen that mean incidence rates were 11.0% in 1990 to 9.3% in 1998 and decreased to about 4-5% until now.

Among the in-patients who were admitted to the TIDA during 1993-2001, 54,605 cases (67.5%) reported use of heroin, 20,606 cases (25.5%) reported use of methamphetamine, 3,851 cases (4.8%) reporting alcohol, and 1,802 cases (2.2%) reporting inhalants. Fig. 2 shows the proportion of type of substance use by year. It shows that heroin abusers decreased from

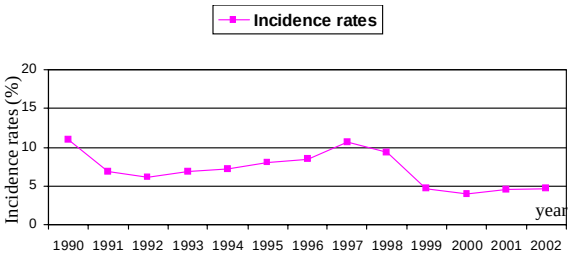

Fig. 1 Incidence rates per year

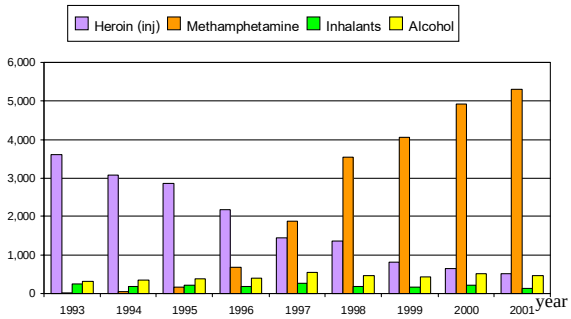

Fig. 2 Numbers of different substances abusers each year

Table 1. Number of tests and Percentages of anti-HIV positive

Tests and Percentage	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	Mean
No of tests	7,864	8,750	8,442	10,024	10,018	10,626	8,218	6,076	6,747	6,349	7,112	7,147	
% of anti HIV +ve	21.4	17.8	16.6	15.7	14.2	14.7	14.3	15.6	11.7	10.1	7.1	7	14.8
No. of IDU	6,160	6,501	6,569	7,287	6,848	7,615	5,671	2,982	2,223	1,508	1,260	1,117	
% of anti HIV +ve in IDU	27.5	23.6	20.6	20.7	19.8	19.7	19.2	25.7	27.4	29.4	24.9	24.9	21.7
No. of non-IDU	1,704	2,249	1,873	2,737	3,170	3,011	2,547	3,094	4,524	4,841	5,852	6,030	
% of anti HIV +ve in non-IDU	2.4	3.2	2.4	2.5	2.7	1.9	2.4	3.6	2.9	2.7	2.7	3.6	2.8

1995 but methamphetamine abusers increased rapidly from 1996. The number of methamphetamine cases became higher than heroin cases in 1997.

Fig. 3 shows the HIV prevalence rates among various groups of substance abusers by year. The authors found HIV positive was highest in heroin abusers 36.8% (range 31.5-46.1%), methamphetamine smokers 3.9% (range 0-7.4%), inhalant users 5.2% (range 2.4-14.0%) and alcohol drinkers 4.1% (range 1.8-6.4%).

The proportion of HIV subtypes (B′ or E) by year (between 1990 and 2000) is demonstrated in Fig. 4. It is noticed that the proportion of subtype E in injecting heroin users increased steadily from 15.4% in 1990 to reach 72.7% in 1996 and then remained relatively stable until 2000. In 1999-2000, the percentages of HIV subtype E are not very different between substance abusers with and without history of injecting, as shown in Table 2.

Discussion

The first case of HIV infection in Thailand was reported in 1984[8]. HIV infection in injecting heroin users (IHU) was the first phase of an epidemic in Thailand[9] and the HIV prevalence rates in this group increased rapidly to about 35% in 3 years with subtype B′ as the predominant subtype in early phase. Subtype

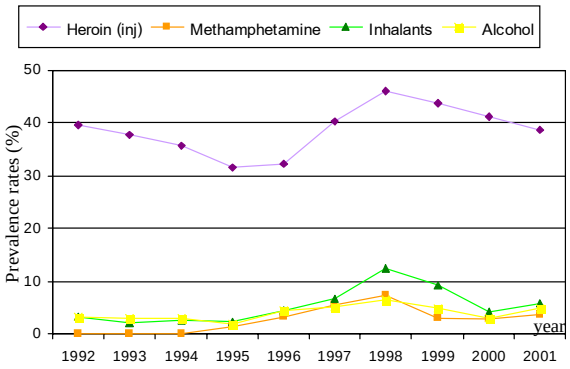

Fig. 3 Percentages of Anti HIV positive in different substance abusers

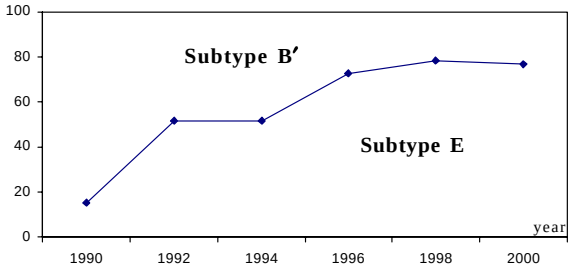

Fig. 4 Proportion of HIV subtypes in injecting heroin users

Table 2. Percentage of HIV subtype in 1999-2000

Type of Drug	No. of tests	No. Anti-HIV positive	% Anti-HIV positive	Subtype E	Subtype B′
Injecting Heroin Users	674	254	37.7	178 (72.1%)	69 (27.9%)
Methamphetamine Smokers	1,293	38	2.9	27 (71.0%)	11 (29.0%)

B′ accounted for 78.6-84.6% between 1987-1990, as shown in Fig. 4. From 1990-1992, the rate of HIV infection in IHU slowly increased to 40% (Fig. 3) with the increasing proportion of subtype E[4] (from 15.4 to 51.6%) (Fig. 4).

Between 1992 and 1995, the percentages of anti HIV positivity decreased from 40% to 30% in IHU (Fig. 3). It may be explained that one-fourth to one-third of them, mostly those infected with subtype B′, died because of late diagnosis and no effective treatment[10].

HIV infection rates among IDU were about 8 times higher than those among non-IDU. This reconfirms the importance of injection as an important risk factor for HIV among drug users. The HIV incidence rates showed a decreasing trend over time. This may be the results of several intervention efforts in this group, including counseling.

From 1995-1999, there was an important change of substance abuse in the country (Fig. 2). Methamphetamine was increasingly used, especially among the youths[6] and some of the heroin abusers (about one-third) changed to use methamphetamine. HIV infection rates among methamphetamine users were quite high possibly because some of the users were ex-injectors and some of them may acquire the infection through sexual routes. The rapid increase in the proportion of methamphetamine users among all drug users might have explained the decreasing trend of HIV infection rates among the drug users. Since methamphetamine is usually smoked by melting the fragment tablet form, exclusive methamphetamine users do not run the risk of acquiring HIV through injection. Although the number of IHU decreased in Thailand, the high prevalence of HIV infection in this group can provide a reservoir of infection. The authors must continue effective prevention programs, e.g. discouraging sharing injecting equipment and promoting the 100% condom program in IDU.

In non-injecting methamphetamine users HIV infection was about 2.8%, which is similar to the rate in the general population in high HIV prevalence areas

in the country[11]. Many of the methamphetamine users are youths with high sexual activities but do not practice safe sex. Appropriate and effective prevention programs are needed for this group.

Acknowledgements

The authors wish to thank Miss Bunyanut Intarasit and Mrs. Somboon Theuktaew for their kindness in collecting the data from the records.

References

1. Fauci AS, Lane HC. Human Immunodeficiency Virus (HIV) Disease: AIDS and Related Disorders. In: Braunwald E, Fauci AS, Kasper DL, eds. Harrison Principles of Internal Medicine; 15th edition. New York: McGraw-Hill, 2001: 1852-913.
2. Verachai V, Phutiprawan T, Theamboonlers A, et al. Prevalence and Genotypes of Hepatitis C Virus Infection among Drug Addicts and Blood Donors in Thailand. Southeast Asian J Trop Med Public Health 2002; 33: 849-51.
3. Limpakarnjanarat K, Ungchusak K, Mastro TD, et al. The epidemiological evolution of HIV-1 subtypes B and E among heterosexuals and injecting drug users in Thailand, 1992-1997. AIDS 1998; 12: 1108-9.
4. Vongsheree S, Phutiprawan T, Sri-ngam P, Thaisri H, Puangtabtim W and Sawanpanyalert P. Co-existence of HIV-1 subtypes B′ and E infections among Thai injecting drug users. Asian Pacific J Allergy and Immuno 2002; 20: 29-35.
5. Vongsheree S, Sri-ngam P, Ruchusatsawat N, et al. High HIV-1 prevalence among methamphetamine users in central Thailand, 1999-2000. J Med Assoc Thai 2001: 1263-6.
6. Verachai V, Dechonkit S, Patarakorn A, Lukanapichonchut L. Drug addicts treatment for ten years in Thanyarak Hospital (1989-1998). J Med Assoc Thai 2001; 84: 24-9.
7. Pau C-P, Lee-Thomas S, Auwanit W, et al. Highly specific V3 peptide enzyme immunoassay for serotyping HIV-1 specimen from Thailand. AIDS 1993; 7: 337-40.
8. Thailand Ministry of Public Health. Acquired immunodeficiency syndrome (AIDS). The first reported cased in Thailand. Weekly Epidemiological Surveillance Report (Thailand) 1984; 15: 509.
9. Wright NH, Vanichseni S, Akarasewi P, Wasi C, Choopanya K. Was the 1988 HIV epidemic among Bangkok's injecting drug users a common source outbreak? AIDS 1994; 8: 529-32.
10. Kitayaporn D, Tansuphaswadikul S, Lohsomboon P, et al. Survival of AIDS patients in the emerging epidemic in Bangkok, Thailand. J Acquir Immune Defic Syndr Hum Retrovirol 1996; 11: 77-82.
11. Ungchusuk K, Saengtalord C, Thonghong A, Junsiriyakorn S, Kumtalord C, and Swangsri S. HIV serosurveillance in Thailand: Result of the 14th Round, June 1999. Thai AIDS J 1999; 11: 163-75.

การติดเชื้อเอดส์ในผู้ป่วยยาเสพติด ของสถาบันธัญญารักษ์ พ.ศ. 2530-2545

วิโรจน์ วีรชัย, ทิพย์วรรณ ภูติประวรรณ, ปฐม สวรรค์ปัญญาเลิศ

การศึกษาการติดเชื้อเอดส์ในผู้ป่วยยาเสพติด ของสถาบันธัญญารักษ์ ในช่วงปี พ.ศ.2530 ถึง พ.ศ.2545 จากผลการตรวจการติดเชื้อเอดส์ จำนวน 118,676 ตัวอย่าง (6,076-10,626 ตัวอย่างต่อปี) พบผลบวก 17,526 ตัวอย่าง (474-2,041 ตัวอย่างต่อปี) ในกลุ่มผู้ป่วยใหม่ของสถาบัน จำนวน 71,403 ราย พบผลบวกในครั้งแรกเลย 12,401 ราย (ร้อยละ 17.4) โดยพบสูงสุดในปี พ.ศ.2533 ร้อยละ 28.3 และลดลงตามลำดับ ถึงร้อยละ 8 ใน 3 ปีหลังของการศึกษา ในผู้ป่วยที่เสพยาโดยการฉีด พบติดเชื้อเอดส์ร้อยละ 21.7 (ร้อยละ 19.2-29.4) สูงกว่าผู้ป่วยที่ไม่ได้เสพยา โดยการฉีดที่พบร้อยละ 2.8 (ร้อยละ 1.9-3.6) ถึง 7.8 เท่า

ในกลุ่มผู้ป่วยเก่าของสถาบันที่เดิมผลเลือดเป็นลบ พบว่า มีผลเลือดเปลี่ยนเป็นบวก จากการตรวจครั้งก่อน 5,125 ราย เป็นอัตราติดเชื้อเฉลี่ยร้อยละ 7.3 ต่อปี

พบมีการติดเชื้อเอดส์สูงที่สุด ในกลุ่มผู้ป่วยที่เสพเฮโรอีนโดยการฉีด สูงถึงร้อยละ 36.87 (ร้อยละ 31.5-46.1) แม้ว่า จำนวนผู้เสพเฮโรอีน โดยการฉีดของประเทศไทย จะลดลงจากการเปลี่ยนไปเสพเมทแอมเฟตามีน โดยการสูบ และบางส่วนเสียชีวิต จากการติดเชื้อเอดส์ชนิดซับไทป์ไทยบี เรายังต้องดำเนินการมาตรการป้องกันที่มีประสิทธิภาพ ในการเปลี่ยนพฤติกรรมไม่ให้มีการใช้อุปกรณ์ ฉีดยาร่วมกัน รวมทั้งดำเนินงานโครงการที่ให้มีการใช้ถุงยางอนามัย ร้อยละ 100 เพื่อควบคุมรังโรคในผู้ป่วยเสพยาเสพติดโดยการฉีดนี้ ไม่ให้มีการแพร่ระบาดต่อไป