High HIV-1 Prevalence Among Metamphetamine Users in Central Thailand, 1999-2000

SUTHON VONGSHEREE, B.Sc., M.Sc.*,
NUANJUN RUCHUSATSAWAT, B.Sc., M.Sc.*,
WIROJ PUANGTABTIM, B.Sc.*,
PATHOM SAWANPANYALERT, M.D.*
PHONGNUWAT SRI-NGAM, Cert. Med. Sci.*,
HANSA THAISRI, B.Sc., M.Sc.*,
TIPWAN PHUTIPRAWAN, B.Sc.**,

Abstract

HIV-1 prevalence was studied in 1,890 metamphetamine users from Thanyarak Hospital from 1999 to 2000. 64.8 per cent positive urine metamphetamine and 2.3 per cent positive urine opiate were observed. The most common route of the drug intake was 93.92 per cent inhalation. HIV-1 prevalence was 2.44 per cent (95% Confidence interval; 1.65-3.18%). 44 out of 46 HIV-1 infected cases were typeable as 32 (72.73%) subtype E and the rest of subtype B′. Active opiate users had a higher rate of HIV-1 infection, 15.91 per cent, compared to 2.11 per cent of the non-opiate users (Fisher's exact test p=0.0002). This group of metamphetamine users is important to public health and more attention on intervention efforts towards HIV infection is urgently needed.

Key word : Metamphetamine Users, HIV-1 Prevalence, Subtype B′/E, New High-Risk People

VONGSHEREE S, SRI-NGAM P, RUCHUSATSAWAT N, et al
J Med Assoc Thai 2001; 84: 1263-1267

Metamphetamine is the most commonly abused drug in Thailand. Data from the Office of Narcotic Control Board (ONCB) of Thailand indicated that it was found in 73 per cent (129,204/176,378) of cases arrested for drug abuse in 1999 (1). A study from Chiang Mai, Thailand(2-4) in 1999 showed quite a high prevalence rate of HIV-1 among metamphetamine users, e.g. 2 per cent among exclusive metamphetamine users and 17.1 per cent among users of metamphetamine and other narcotics. The following factors were found to be associated with HIV-1 infection: young age, being unmarried, being sexually active, use of commercial sex, inconsistent use of condoms with wives and other women, his-

* National Institute of Health, Department of Medical Sciences, Ministry of Public Health, Nonthaburi, 11000,
** Thanyarak Hospital, Department of Medical Services, Ministry of Public Health, Pathum Thani, 12000 Thailand.

tory of sexually transmitted diseases (STD), history of heroin and/or opium use, and history of sharing injection equipment. There are not many reports on HIV-1 subtypes among metamphetamine users. Tovanabutras et al[5] reported that 93.5 per cent and 6.5 per cent of HIV-1 among a group of non-injecting drug users in the north Thailand were of subtypes E and B′, respectively. This study reports HIV-1 prevalence and subtype distribution among metamphetamine users in central Thailand.

MATERIAL AND METHOD

This study was conducted in Thanyarak Hospital, the Department of Medical Services of the Ministry of Public Health. The hospital is located 30 km north of Bangkok. It is the largest substance abuse treatment center in Thailand. Approximately 11,000 new drug users are treated annually.

1,890 metamphetamine users attending the detoxification clinic in the hospital from June 1988 to June 1999, were randomly selected into the study. All users agreed to have their blood and urine tested. Specimens were collected after informed written consent. Blood was tested for anti-HIV-1 antibody using ELISA (HIV-1/2 DAGS, Roche, USA) and gel particle agglutination (Fujirebio Inc, Japan). Sera positive for anti-HIV-1 antibody were subtyped by using peptide binding immunoassay (PEIA), which has been demonstrated to be sensitive and specific [6,7]. Urine was tested for opiate and metamphetamine by using EMIT® d.a.u. (Syva, USA). Chi square test was used to test the difference in distribution of qualitative data between two or more groups. Fisher's exact test was used when the expected number was below 5.

RESULT

Out of the 1,890 metamphetamine users, 46 (2.44%) cases were anti-HIV-1 positive. Descriptive characteristics of the participants are shown in Table 1.

A high rate of drugs abusers was observed, 1,293 (68.4%) were positive for urine metamphetamine and 44 (2.3%) were positive for urine opiate.

Table 1. HIV-1 seroprevalence by descriptive characteristics of the metamphetamine users.

Characteristics	No. anti-HIV-1 negative	No. anti-HIV-1 positive	%	p-value
Collection year				
1999	1,148	26	2.20	
2000	696	20	2.80	> 0.05*
Total	1,844	46	2.44	
Age (years)				
≤ 20	1,038	5	0.48	
> 20	806	41	4.84	< 0.001**
Mean age	22 years	28 years		< 0.05*
Sex				
Male	1,723	45	2.54	
Female	121	1	0.82	0.382***
Urine metamphetamine test				
Positive	1,265	28	2.16	
Negative	579	18	3.02	> 0.05**
Urine opiate test				
Positive	37	7	15.91	
Negative	1,807	39	2.11	0.0002***
Route of administration				
Inhalation	1,736	39	2.20	
Others	108	7	6.09	0.030***
Intravenous drug injection				
Injection	38	7	15.56	
Noninjection	1,806	39	2.11	0.0002***

* *t*-test; ** Chi-squre test; *** Fisher's exact test; significant different at $p < 0.05$

%, represent percentage of anti-HIV-1 positive cases by total cases of individual descriptive characteristics.

The routes of methamphetamine administration were 1,775/1,890 (93.92%) inhalation and 115 (6.08%) other routes including 45 (2.38%) injection, 25 (1.32%) ingestion and 45 (2.38%) unspecified routes.

The mean age of the users was 22 years (SD = 5.8; range = 11-77 years). The mean age of the HIV-1 infected cases was 28 years and that of HIV-1 non-infected cases was 22 years (*t*-test, $p < 0.05$). Among 46 HIV-1 infected cases, most (43/46 or 93.48%) of them had previously been documented with HIV-1 infection within a 2-year duration.

Higher HIV-1 prevalence was observed among users with a positive urine opiate test (7/44 or 15.91 per cent for positive opiates and 39/1,846 or 2.11 per cent for negative opiate test) and injecting behavior (7/45 or 18.42% for injectors and 39/1,845 or 2.11 for non-injectors). There was no difference in HIV-1 prevalence according to sex (45/1,768 or 2.54% for males and 1/122 or 0.82% for females) and urine metamphetamine test (28/1,293 or 2.16% for positive cases and 18/597 or 3.02% for negative cases).

Injectors had a higher positive urine metamphetamine (14/14 or 100%) than non-injectors (1,220/1,890 or 67.8%; p = 0.009 by Fisher's exact test).

Of the 46 HIV-1 infected cases, 44/46 (95.65%) could be subtyped by PEIA. Some characteristics of subtype E and B′ infected users are described in Table 2.

HIV-1 subtype proportion in infected users was 32/44 (72.73%) subtype E and 12/44 (27.27%) subtype B′. HIV-1 subtype proportions were similar according to their mean ages (31.3 years for those of subtype E and 26.8 years for those of subtype B′ infected cases), positive urine metamphetamine test (27/32 or 84.4% of subtype E and 11/12 or 91.4% of subtype B′ infected cases), and positive urine opiate test (5/32 or 15.62% of subtype E and 2/12 or 16.67% of subtype B′ infected users).

Table 2. HIV-1 infected metamphetamine users by descriptive characteristics of the participants.

Characteristics	Number	%
Duration of HIV-1 infection		
≤ 2 years	43	93.48
> 2 years	3	6.52*
PEIA serotyping		
Monoreactive	44	95.65
Nonreactive	2	4.35*
HIV-1 subtype		
Subtype E	32	72.73
Subtype B′	12	27.27*
Mean age		
Subtype E infected cases	31.3 years	
Subtype B′ infected cases	26.8 years**	
Positive metamphetamine test		
Subtype E infected cases	27	84.4
Subtype B′ infected cases	11	91.7
Positive urine opiate test		
Subtype E infected cases	5	15.62
Subtype B′ infected cases	2	16.67**

* *t*-test $p < 0.05$, significant different ;
** *t*-test $p > 0.05$, not significant different

DISCUSSION

The metamphetamine users in central Thailand are quite young and have a high rate of positive urine metamphetamine. This indicates that they are active drug users. In comparison with the northern study[2-4], this study shows a comparable HIV-1 prevalence rate, e.g. 2.44 per cent *versus* 2 per cent among metamphetamine users and 15.91 per cent *versus* 17.1 per cent among users of other narcotics, respectively. A high proportion of subtype E infected users was also observed in this study at 72.73 per cent, which is lower than 93.5 per cent subtype E of the northern study[5]. This may be due to the high subtype E circulating in the north *via* heterosexual transmission. However, the proportions of subtype E in this study were similar to that of intravenous drug users[8]. In this study, some factors were associated with a higher HIV-1 prevalence rate including older cases, a higher rate of positive urine opiate, injecting behavior and a shorter duration of HIV-1 infection. There was no difference in the HIV-1 prevalence rate according to their gender and rate of positive urine metamphetamine.

The high prevalence of HIV infection in this group of metamphetamine users compared to that of Thai military conscripts and that of women attending antenatal clinic[9] warrants attention. This suggests that age is not the most important risk factor in this group. Thus, metamphetamine can be considered as a risk group. The current report from Thanyarak Hospital[10] indicated that metamphetamine addiction has markedly increased from 0.4 per cent to 51.5 per cent of the addicts from 1989 to 1998. Evidently, the number of metamphetamine users increases year by year, as reflected in the number of those arrested for metamphetamine use and sale from 21,833 cases

in 1995 to 142,028 cases in 1999. The fact that the number of metamphetamine users could be potentially as great as 10 times more than the arrested cases.

This group of metamphetamine users is of public health importance since the group is at high risk of HIV infection, they are quite young but have little knowledge or information about HIV/AIDS. More attention on intervention efforts towards HIV infection for this group is urgently needed and may require a novel prevention approach.

ACKNOWLEDGEMENTS

The authors wish to thank the HIV/AIDS Collaboration (between the US Centers for Disease Control and Prevention located in Thailand and Thailand's Ministry of Public Health) for kindly providing peptide powder and reference HIV-1 subtype sera. We also wish to thank the staff of Thanyarak Hospital for their kind assistance in collection of specimens and retrieval of data from medical records. This study was financially supported by the Ministry of Public Health budget, Thailand.

(Received for publication on December 19, 2000)

REFERENCES

1. Office of Narcotic Control Board, Secretarial of the Prime Minister, Thailand Annual report for 1999 (http://www.oncb.go.th).
2. Razak MH, Jittiwutikarn J, Srisak N, et al. HIV Risk among metamphetamine users in northern Thailand : A maturing epidemic chases a new epidemic. The Fifth International Conference on AIDS in Asia and Pacific, 1999, Kuala Lumpur, Malaysia, Abstract no.179/PTCDO32.
3. Vongchak T, Srisak N, Razak MH, et al. Risks for HIV infection among 13-24 years old drug users in northern Thailand. The Fifth International Conference on AIDS in Asia and Pacific, 1999, Kuala Lumpur, Malaysia, Abstract no.980/MCD14-50.
4. Razak MH, Jittiwutikarn J, Vongsak T, et al. High-risk taking metamphetamine users at risk of HIV infection. International AIDS Conference, 2000, Durban, South Africa., Abstract no. TuPeC3441.
5. Tovanabutra S, Razak MH, Rungruengthanakit K. HIV-1 subtype E is predominant among drug users in Northern Thailand. XIII international AIDS Conference, 2000, Durban, South Africa. Abstract no. MoPeC2382.
6. Pau C-P, Lee-Thomas S, Auwanit W, et al. Highly spacific V3 peptide enzyme immunoassay for serotyping HIV-1 specimens from Thailand. AIDS 1993; 7: 337-40.
7. Gaywee J, Artenstein AW, Vancott TC, et al. Correlation of genetic and serologic approaches to HIV-1 subtype in Thailand. J Acq Imm Def Syndr Hum Retrovirol 1996; 13: 392-6.
8. The HIV/AIDS Collaboration, Thailand. Annual Report for 1998-1999: 37-43.
9. Ungchusak K, Saengwonloey O, Thonghong A, Junsiriyakorn S, Kumtalord C, Swangsri S. HIV serosurveillance in Thailand : Result of the 17th Round, June 1999. Thai AIDS J 1999; 11: 163-75.
10. 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.

พบความชุกของการติดเชื้อเอ็ชไอวี-1 สูงในผู้ติดยาบ้าเขตภาคกลางของประเทศไทย ระหว่าง พ.ศ. 2542-2543

สุธน วงษ์ชีรี, วท.บ., วท.ม., พงษ์นุวัตร์ ศรีงาม, ปก.ส.*,*
นวลจันทร์ ฤชุศาสวัต, วท.บ., วท.ม., หรรษา ไทยศรี, วท.บ., วท.ม.*,*
วิโรจน์ พวงทับทิม, วท.บ., ทิพวรรณ ภูติประวรรณ, วท.บ.**,*
*ปฐม สวรรค์ปัญญาเลิศ, พ.บ.**

ได้ศึกษาความชุกของการติดเชื้อเอ็ชไอวี-1 ในผู้ใช้ยาบ้าจำนวน 1,890 ราย ที่เข้ารับการบำบัด ณ โรงพยาบาลธัญญารักษ์ ระหว่าง พ.ศ. 2542-2543 จากการตรวจสารเสพติดในปัสสาวะ พบยาบ้าร้อยละ 68.4 และสารกลุ่มโอพิเอทร้อยละ 2.3 ผู้มีประวัติใช้ยาบ้าเสพโดยการสูบมากที่สุดร้อยละ 93.92 ความชุกของการติดเชื้อเอ็ชไอวี สูงถึงร้อยละ 2.44 (ร้อยละ 95 ช่วงความมั่นใจ, 1.65-3.18) จำแนกชนิดซับทัยป์ได้ 44 รายจากผู้ติดเชื้อ 46 ราย โดยพบการติดเชื้อซับทัยป์ อี จำนวน 32 ราย คิดเป็นร้อยละ 72.73 ที่เหลือติดเชื้อซับทัยป์ บี ผู้ใช้ยาบ้าที่ใช้สารกลุ่มโอพิเอทร่วมด้วยมีอัตราการติดเชื้อเอ็ชไอวีร้อยละ 15.91 ขณะที่อัตราการติดเชื้อเอ็ชไอวีในผู้ใช้ยาบ้ากลุ่มที่เหลือมีเพียงร้อยละ 2.11 (Fisher's exact test, p = 0.0002) กลุ่มผู้ใช้ยาบ้าจึงมีความสำคัญทางสาธารณสุขและต้องการความสนใจในการป้องกันการติดเชื้อเอ็ชไอวี-1 โดยด่วน

คำสำคัญ : ความชุกของการติดเชื้อเอ็ชไอวี-1 ในผู้ติดยาบ้า, ชนิดซับทัยป์ B'/E, ประชากรเสี่ยงกลุ่มใหม่

สุธน วงษ์ชีรี, พงษ์นุวัตร์ ศรีงาม, นวลจันทร์ ฤชุศาสวัต, และคณะ
จดหมายเหตุทางแพทย์ ฯ 2544; 84: 1263-1267

* สถาบันวิจัยวิทยาศาสตร์สาธารณสุข, กรมวิทยาศาสตร์การแพทย์, กระทรวงสาธารณสุข, นนทบุรี 11000
** โรงพยาบาลธัญญารักษ์, กรมการแพทย์, กระทรวงสาธารณสุข, ปทุมธานี 12000