Epidemiology of the Hill Tribe HIV/AIDS Populations, Thailand

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Objective: *A retrospective cohort study was conducted to determine the situation and factors related to the death among the HIV/AIDS Hill tribe in Northern Thailand.*
Material and Method: *A systematic data-reviewing approach was used to identify the information from the rosters of ARV clinics, OPD cards, and laboratory reports from 16 hospitals in Chiang Rai Province, Thailand. The data were collected from the first reported HIV/AIDS case of the Hill tribe to the end of 2010. A logistic regression models were used to identify associations. A p-value <0.05 was considered as a statistical significance in multiple logistic regression models.*
Results: *Three thousand one hundred thirty cases were included in the present study. The majority of patients were Akha (46.0%) followed by Lahu (19.7%), 54.6% were males, 44.6% were 26 to 35 years old. The major risk factor of HIV infection was sexual intercourse (91.7%); 33.3% were still alive at the date of data collection, 30.7% were diagnosed with pulmonary TB. Regarding survival status, females had a better surviving rate than males with adjusted OR = 1.41, 95% CI = 1.19-1.66. Those that had the route of transmission as "mother-to-child" and "IDU" had greater chance of survival compared to those who contracted HIV from "sexual intercourse", with adjusted OR = 2.05, 95% CI = 1.56-2.18, and adjusted OR = 8.45, 95% CI = 1.55-46.13, respectively.*
Conclusion: *Thailand needs to develop an appropriate model for providing care at the earlier stage of HIV/AIDS infection to prevent early death for the Hill tribe population.*

Keywords: *HIV/AIDS, Death, TB, Hill tribe, ARV, Thailand*

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HIV/AIDS is still a major global health problem, having claimed more than 39 million lives since the first HIV case report; the great majority of sufferers live in developing countries, particularly Africa and Asia. Globally, by the end of 2013, 1.5 million people had died from HIV-related causes, and approximately 35.0 million people were living with HIV, with 2.1 million being newly detected cases[1].

It is widely accepted that AIDS has reached an epidemic proportion in Thailand, particularly in northern and middle regions. Approximately 2.0% of males and 1.5% of females live with HIV/AIDS, while the figure was 0.8% globally in 2011[2]. Since the first AIDS case was reported in Thailand in 1984, there have been 388,621 cumulative cases of HIV/AIDS, and 100,617 have died[3].

Thailand has computerized population database as all Thais are required by law to register for an Identification (ID) card by age 7. A Thai ID card with ID number is essential for most legal or formal transactions in Thailand including claiming access to government free or subsidized health service. Hill tribe people have been migrating for many decades and formed settlements along the Thai border areas. They are now living in different locations in Thailand. Their settlements are gradually becoming more permanent with later generations but there is still a tradition of Hill tribe people crisscrossing the border according to their economic, cultural, or political necessity from time to time. Their villages are often in very remote areas making applying for a house registration or address either difficult or unnecessary. Their status is rather like alien refugees even well into the second or third generation of immigrants. Successive Thai governments, being concerned about border security, have taken a cautious approach toward conferring Thai citizenship to hill tribe people by granting different types and stages of internal passport and citizenship. Many still have not obtained documents that entitle them to travel legally within an allowed area due to lack of information, language barrier, fear of being arrest etc., which considerably restrict their movement including seeking employment, education for children, and medical treatment. In addition, traditional belief and medical system are still strong in their villages,

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which many may choose to manage their health and illnesses.

Hill tribes in Thailand are classified into six main groups[4], Lahu, Akha, Lisu, Karen, Yao, and Kmong. These tribes have immigrated from the south of China to Thailand in the last several decades. Approximately 1,600,000 tribe people were living in Thailand in 2013[4]. Each group has their own language, culture, and beliefs, which are different from those of the Thai. Most live in the mountainous border areas in north of Thailand among 16 provinces. The Hill tribe people of Chiang Rai Province, the northernmost province of Thailand, live in 652 villages with a total population of 180,214[5]. Their villages are in remote areas approximately 70 km from the city with poor road access and public transport. Many Hill tribe people do not qualify for or have failed to obtain a Thai identification card, which generally is required for free or subsidized government medical and educational services. Most of the Hill tribe people, if working, work in manual jobs with low pay. Therefore, the Hill tribe people in northern Thailand still have limited opportunity to earn money, receive health information, and access to affordable healthcare. These populations are vulnerable to infectious diseases, such as HIV and tuberculosis (TB).

There is little information regarding the HIV/AIDS among the Hill tribes of Thailand. Through a systematic review of the secondary information from 16 hospitals in Chiang Rai Province, the present study aimed to determine the situation, trend, and possible risk factors of death of the Hill tribe HIV/AIDS population who had received care from those hospitals during a twenty-year period between 1990 and 2010.

Material and Method

Study design

A retrospective cohort study was conducted to investigate the situation, trend, and possible risk factors of death among Hill tribe HIV/AIDS patients who had visited one of the 16 hospitals in Chiang Rai Province, Thailand, from the first reported HIV case (who was a Hill tribe patient) until 2010.

Study population

The study population constituted of Hill tribe patients who were living in one of the 652 Hill tribe villages in Chiang Rai Province. These villages were made up of 36 Karen (7,628 persons), 59 Kmong (31,522 persons), 63 Yao (13,400 persons), 243 Akha (68,897 persons), 216 Lahu (48,835 persons), and 35 Lisu (9,932 persons) villages, with total population of 180,214 persons.

Study sites and source of data

Patients' information were collected from the medial records of antiretroviral (ARV) clinics of the 16 hospitals in Chiang Rai Province, which were Chiang Rai Central, Wiang Pa Pao, Mae Chan, Wiang Ken, Chiang Saen, Mae Suai, Mae Fah Laung, Phaya Mengrai, Doi Luang, Phan, Chiang Khong, Wiang Chai, Thoeng, Khun Tan, Mae Sai, and Mae Lao hospitals.

In the present study, four data sources were used to complete the information, a) a government database to identify the tribe of the subjects, b) ARV rosters to collect general information, c) laboratory reports to support laboratory information, and d) outpatient department (OPD) card for a complete medical record, including history of treatments and opportunistic infections.

Eligible population

The eligible population of the study was Hill tribe patients living in Chiang Rai and was diagnosed as HIV/AIDS and visited one of the 16 hospitals during the period from the first hill tribe HIV/AIDS patient was reported to the hospital system in 2010.

Inclusion criteria

The inclusion criteria were patients whose medical records indicated that they were a) identified as hill tribe persons, b) living in the study areas, and c) medically diagnosed as having HIV/AIDS.

Sample size

All of the HIV/AIDS patients in the rosters of 16 ARV clinics from the first case (1990) of HIV/AIDS in the Hill tribe through 2010 were included in the present study. HIV/AIDS classification was done based on at the date of diagnosis.

Research instruments

To gather and integrate information from hospital OPD cards and ARV clinic medical records, we developed a data collection form with three parts, a) basic information part for patient demographic, such as age, sex, tribe, marital status, weight, height, drug use history, etc., b) laboratory information, such as the CD4 level, viral load, CBC, sputum test, etc., and c) clinical information, such as history, symptoms,

signs, treatment, and health status (alive or dead) at the last record entry. The form was validated by Content Validity Index (CVI) method before use.

Data-gathering procedures

The collecting information form was developed after the literature review. The form was validated by three external experts in the field of TB-HIV/AIDS and piloted in a study at Mae Chan Hospital. The systematic reviewing process was tested in Mae Chan Hospital before commencing the project.

Written permission for access information was granted by the director of each hospital and the chief of each ARV clinic. The information from each unit (ARV, OPD, and Laboratory) was linked by the hospital number. Before reviewing and investigating the information in any section of the hospital, the ARV staff helped to identify the cases that met the inclusion criteria.

In the verification process of the hill tribe people, we first used the database of the district government office system to identify the residential location of the patients, including village and patient's names, and second, the information from the ARV was used to confirm verification process to ensure that all of the subjects that were included in the study met the inclusion and exclusion criteria.

Statistical analysis

The data were double-entered by two different persons and validated using Microsoft Excel. The data analysis was carried out using STATA version 8.2 (Stata Corp, College Station, TX), and Epi-Info version 6.04d (US Centers for Disease Control and Prevention, Atlanta, GA).

Both descriptive and inferential statistics were used to analyze the information. For a descriptive analysis, the mean, standard deviation, minimum, and maximum were used to describe the characteristic of continuous variables, while the percentage or proportion was used to describe the characteristic of categorical variables.

The logistic regression was used to detect the association between independent and dependent variables at critical values of 0.10 in the simple logistic regression model and 0.05 in the multiple logistic regression model. Variables that found the significance in the simple logistic regression model was kept in the multiple logistic regression model, and fixed it before interpretation in the final model.

Ethical consideration

The present research study was approved by the Ethics in Human Research Committee of Mae Fah Luang University (No.REH-55021). Permission to collect data in nine hospitals in Chiang Rai Province was granted by The Chiang Rai Provincial Public Health Office. Patient medical records and information was anonymized and re-identified prior to analysis.

Results

There were 3,130 Hill tribe HIV/AIDS patients from 16 hospitals in Chiang Rai Province between 1990 and 2010 recruited for the study based on the criteria. Of these cases, 960 (30.7%) had at least one episode of TB. The first case of HIV/AIDS in the Hill tribe people was a 25-year-old Lisu, reported at Mae Suai Hospital, Chiang Rai Province, in 1990.

The majority of the tribes were Akha (46.0%), followed by Lahu (19.7%) and Yao (9.5%). More than half were male (54.6%), and 44.6% were 26 to 35 years old, followed by 36 to 45 years old (25.2%), and 16 to 25 years old (14.3%). The peak period of HIV/AIDS infection among the Hill tribes occurred from 2001 to 2005 (43.9%), followed by from 2006 to 2010 (33.7%).

Regarding the habitat, 25.8% of the people resided in the Mae Fah Laung district, followed by 18.8% in the Mae Suai district, 16.2% in the Muang Chiang Rai district, and 11.1% in Mae Chan district. Regarding the occupations, 44.8% were agricultural workers and 32.2% were daily and temporary employees. The major risk factors of HIV infection were sexual intercourse (91.7%), 7.8% mother-to-child, and 0.5% injection drug users (IDU). Most of the subjects did not receive ARV (76.1%), only 297 had measured CD4 level, 33.3% were still alive at the date of data collection, and 30.7% had TB disease documented at some time after the HIV/AIDS infection was diagnosed (Table 1).

Table 2 showed the eight variables in the simple logistic regression analysis that had statistically significant association with the patients' survival status at the date of data collection (alive or dead from the medical record) of the Hill tribe HIV/AIDS individuals. The Karen and Kmong had less opportunity to survive compared to the Yao tribe, with OR = 0.58 (90% CI = 0.43-0.77) and OR = 0.55 (90% CI = 0.41-0.74), respectively. Patients aged 16 to 25, 26 to 35, 36 to 45, and older than 56 years had less opportunity to survive compared to those aged less than 15 years, with OR = 0.51, 90% CI = 0.37-0.69, OR = 0.60, 90% CI = 0.46-0.79, OR = 0.60, 90% CI = 0.45-0.80,

Table 1. General characteristics of the hill tribe HIV/AIDS

Characteristics	n	%
Total	3,130	100
Tribal group		
Akha	1,441	46.0
Karen	271	8.7
Kmong	221	7.1
Lahu	617	19.7
Lisu	282	9.0
Yao	298	9.5
Sex		
Male	1,710	54.6
Female	1,420	45.4
Age (years)		
≤15	230	7.4
16-25	448	14.3
26-35	1,396	44.6
36-45	790	25.2
46-55	197	6.3
≥56	69	2.2
Max = 90, Min = 1, Mean = 31.8, SD = 11.4		
Occupation		
Agriculture	1,403	44.8
Temporary employee	1,007	32.2
Trader	57	1.8
Housewife	98	3.1
Children (<7 years)	109	3.5
Students (7 ≥ university)	104	3.3
Unemployed	89	2.8
Others	263	8.4
Year of diagnosis		
1990-1995	154	4.9
1996-2000	548	17.5
2001-2005	1,374	43.9
2006-2010	1,054	33.7
Living areas (district)		
Muang Chiang Rai	507	16.2
Wiang Pa Pao	442	14.1
Mae Chan	348	11.1
Wiang Ken	123	3.9
Chiang Saen	41	1.3
Mae Suai	589	18.8
Mae Fah Laung	808	25.8
Phaya Menrai	28	0.9
Doi Luang	40	1.3
Phan	73	2.3
Chiang Khong	58	1.9
Wiang Chai	18	0.6
Thoeng	14	0.5
Khun Tan	2	0.1
Mae Sai	14	0.5
Mae Lao	25	0.8
Diagnosis as (classified in medical record)		
Asymptomatic	373	11.9
HIV (AIDS related complex)	2,060	65.8
AIDS	697	22.3
Route of transmission		
Sexual intercourse	2,869	91.7
Mother to child	244	7.8
IDU	17	0.5
Health status (last entry)		
Alive	1,043	33.3
Dead	2,087	66.7
Initiated ARV		
Yes	750	23.9
No	2,380	76.1
CD4 level (cell/ml)		
>200	285	9.1
≤200	12	0.4
Unknown	2,833	90.5
Max = 281, Min = 32, Mean = 117.7, SD = 55.6		
TB disease		
No	2,170	69.3
Yes	960	30.7

IDU = injection drug users; ARV = antiretroviral; TB = tuberculosis

and OR = 0.33, 90% CI = 0.20-0.53 respectively. Those who had been diagnosed with HIV and AIDS had less opportunity to survive compare to those asymptomatic group, with OR = 0.06, 95% CI = 0.04-0.12, and OR = 0.25, 90% CI = 0.10-0.47 respectively. Those who had been infected through mother-to-child transmission and IDU had a 2.05 times and 8.45 times, respectively, better chance of survival at the date of data collection (90% CI = 1.56-2.68; 90% CI = 1.55-46.13). Patients who did not receive ARV had less chance of survival than those who received ARV (OR = 0.15, 90% CI = 0.12-0.19), and those who had occupation in the categories of "temporary employee", "housewife", "students", and "others" had a greater opportunity of survival at the date of data collection compared to "agriculture", with OR = 1.88, 90% CI = 1.66-2.19; OR = 1.61, 90% CI = 1.10-2.36; OR = 5.46, 90% CI = 3.21-9.30; and OR = 1.74, 90% CI = 1.36-2.33, respectively. Patients who had been diagnosed from 2001 to 2005 and 2006 to 2010 had a 4.10 (90% CI = 3.05-5.52) and 13.24 times (90% CI = 9.63-18.20) better chance of survival, respectively, at the date of data collection compared with those who had been diagnosed between 1990 and 1995.

From the multiple logistic regression model at a significance level of 0.05, five variables were statistically significantly associated with patients' survival status at the date of data collection. The Karen and Kmong had less opportunity to survive compared

Table 2. Simple logistic regression analysis of factors related to patients' survival status among the hill tribe HIV/AIDS

Characteristics	Survival status		OR	90% CI
	Alive (%)	Dead (%)		
Tribal				
Akha	456 (31.6)	985 (68.4)	1.02	0.82-1.28
Karen	122 (45.0)	149 (55.0)	0.58	0.43-0.77*
Kmong	102 (46.2)	199 (53.8)	0.55	0.41-0.74*
Lahu	192 (31.1)	425 (68.9)	1.05	0.82-1.35
Lisu	75 (26.6)	207 (73.4)	1.31	0.97-1.77
Yao	96 (32.2)	202 (67.8)	1.00	
Age (year)				
≤15	54 (23.5)	176 (76.5)	1.00	
16-25	168 (37.5)	280 (62.5)	0.51	0.37-0.69*
26-35	470 (33.7)	926 (66.3)	0.60	0.46-0.79*
36-45	267 (33.8)	523 (66.2)	0.60	0.45-0.80*
46-55	51 (25.9)	146 (74.1)	0.87	0.60-1.27
≥56	33 (47.8)	36 (52.2)	0.33	0.20-0.53*
Diagnosis				
Asymptomatic	144 (38.6)	229 (61.4)	1.00	
HIV	729 (38.4)	1,268 (61.6)	0.06	0.04-0.12*
AIDS	107 (15.4)	590 (84.6)	0.25	0.10-0.47*
TB				
Yes	859 (39.6)	1,311 (60.4)	1.00	
No	184 (19.2)	776 (80.8)	2.76	2.37-3.22*
Route of transmission				
Sexual intercourse	992 (34.6)	1,877 (54.4)	1.00	
Mother to child	50 (20.5)	194 (79.5)	2.05	1.56-2.68*
IDU	1 (5.9)	16 (94.1)	8.45	1.55-46.13*
ARV				
Yes	73 (9.7)	677 (90.3)	1.00	
No	970 (40.8)	1,410 (59.2)	0.15	0.12-0.19*
Occupation				
Agriculture	511 (39.3)	852 (60.7)	1.00	
Temporary employee	257 (25.5)	750 (74.5)	1.88	1.66-2.19*
Trader	23 (40.4)	34 (59.6)	0.95	0.60-1.50
Housewife	28 (28.6)	70 (71.4)	1.61	1.10-2.36*
Children (<7 years)	42 (38.5)	67 (61.5)	1.03	0.73-1.44
Students (7 ≥ university)	11 (10.6)	93 (89.4)	5.46	3.21-9.30*
Unemployed	60 (67.4)	29 (32.6)	0.31	0.21-0.45
Others	71 (27.0)	192 (70.0)	1.74	1.36-2.23*
Year of diagnosis				
1990-1995	102 (66.2)	52 (33.8)	1.00	
1996-2000	361 (65.9)	187 (34.1)	1.01	0.74-1.39
2001-2005	444 (32.3)	930 (67.7)	4.10	3.05-5.52*
2006-2010	136 (12.9)	918 (87.1)	13.24	9.63-18.20*

* Significance level $\alpha = 0.10$

to the Yao (adjusted OR = 0.58, 95% CI = 0.43-0.77; adjusted OR = 0.55, 95% CI = 0.41-0.74, respectively), and females had 1.41 times greater chance of surviving than males (95% CI = 1.19-1.66). Patients who were diagnosed with "HIV" and "AIDS" had less chance of surviving than those who were diagnosed with "Asymptomatic", with adjusted OR = 0.05 (95% CI = 0.03-0.09) and adjusted OR = 0.34 (95% CI = 0.17-0.64), respectively. Those who had defined route of transmission in the category of "mother-to-child" and "IDU" had greater chance of survival compared to those contracted HIV from "sexual intercourse", with adjusted OR = 2.05, 95% CI = 1.56-2.68 and adjusted OR = 8.45, 95% CI = 1.55-46.13, respectively. Finally,

Table 3. Multiple logistic regression analysis of factors related to patients' survival status among the hill tribe HIV/AIDS

Factors	Survival status		Adjusted OR	95% CI
	Alive (%)	Dead (%)		
Tribal group				
Akha	456 (31.6)	985 (68.4)	0.85	0.82-1.28
Karen	122 (45.0)	149 (55.0)	0.58	0.43-0.77*
Kmong	102 (46.2)	119 (53.8)	0.55	0.41-0.74*
Lahu	192 (31.1)	425 (68.9)	1.05	0.82-1.35
Lisu	75 (26.6)	207 (73.4)	1.30	0.97-1.77
Yao	96 (32.2)	202 (67.8)	1.00	
Sex				
Male	664 (37.7)	1,060 (62.3)	1.00	
Female	399 (28.1)	1,021 (71.9)	1.41	1.19-1.66*
Diagnosis				
Asymptomatic	144 (38.6)	229 (61.4)	1.00	
HIV	729 (38.4)	1,268 (61.6)	0.05	0.03-0.09*
AIDS	107 (15.4)	590 (84.6)	0.34	0.17-0.64*
Route of transmission				
Sexual intercourse	992 (34.6)	1,877 (65.4)	1.00	
Mother to child	50 (20.5)	194 (79.5)	2.05	1.56-2.68*
IDU	1 (5.9)	16 (94.1)	8.45	1.55-46.13*
ARV				
Yes	73 (9.7)	677 (90.3)	1.00	
No	970 (40.8)	1,410 (59.2)	0.16	0.13-0.19*

* Significance level $\alpha = 0.05$

patients who did not receive ARV had less opportunity to survive compared to those who received ARV, with adjusted OR = 0.16, 95% CI = 0.13-0.19 (Table 3).

Discussion

The present study illustrated that among 3,130 members of the Hill tribe HIV/AIDS population from the first case of HIV/AIDS report to the end of 2010. Regarding factors related to patients' survival status, we found that being the Karen and Kmong tribes, non-receiving ARV, and HIV and AIDS stage had less opportunity to survive compared to those from other tribes, receiving ARV, and asymptomatic stage, respectively.

The present study had major limitation in the quality of the available secondary data. The identification and confirmation of a patient's Hill tribe status was a significant challenge. Fortunately, in identifying which patient on the hospital lists was a Hill tribe person, we could rely on the characteristics of their first and last names, which provided a reliable clue to whether they met the inclusion criteria. The naming tradition is that the child takes the father's last name (which is recorded on the hospital registration) even if he/she has grown up and chosen later to belong to a different tribe than that of his/her parents. The local ARV clinic staff had been extremely helpful in this respect, as most of them have worked in the area for many years and knew the patients, their families, and their villages intimately from providing counseling and health checks and giving out medication on a monthly basis. A few subjects had changed their first name, but it was not a problem for classification because most still lived in their original village.

Prior to 2000, the majority of the Hill tribe people did not have Thai identification cards, which was one reason for the poor attendance to clinics of this section of the study population during that period. Another important reason was that, for several years after HIV/AIDS diagnosis became recognized, they did not entitle to free medical care under the government's universal medical care scheme. It is certain that many sufferers had never been diagnosed or if they had been initially diagnosed, they were lost to follow-up due to financial constraints. The overall result of the present study is that the recorded number of HIV patients who we were able to trace from medical records was lower than the true number at the beginning of the survey periods.

Other reasons that affected the number of recorded cases included social stigmatization in the early days, which deterred patients from seeking

hospital care. Apidechkul in 2009 found that Akha youths, members of one of the Hill tribes, preferred to travel to large cities to seek employment to support their families, and some contracted HIV/AIDS during their time away from home[6].

The study also found that the Karen and Kmong tribes had a greater risk of death than the Yao. This might be due to their socio-economic status, which limited access to health care and caused them to be vulnerable to disease infections[7-9]. Karen and Kmong also widely used traditional medicine[10].

Lawn et al[11] reported that the death rate of TB and HIV/AIDS co-infection dramatically decreased after scaling up HIV/AIDS testing among the TB-positive and improved the survival of those with HIV-associated TB, reducing mortality rates by 64 to 95%. This result agrees with our study, which found that patients receiving ARV had a greater chance of survival. Arbor et al[12] also reported that receiving ARV and co-trimoxazol and having CD4 greater than 50 were supportive factors for survival among HIV/AIDS patients. However, Boettiger et al[13] reported that not everyone having ARV could control the viral load, as those patients who had history of opportunistic infection tended to develop virological failure. A meta-analysis conducted by Jiang et al[14] found that ARV could be associated with adverse events and drug interaction with anti-TBs. In the present study, we found that those who had ARV had greater opportunity to death than those who did not. This could be because most of the HIV/AIDS patients who enrolled into the ARV program were the patients who had low level of CD4. Therefore, those patients had trend to death than the other groups. However, Harries et al[15] supported the early diagnosis and treatment of HIV infection in affected communities and proposed that the urgent assessment of frequent testing for HIV and early start of antiretroviral treatment (ART) should result in short-term and long-term decline in TB incidence through individual immune reconstitution and reduced HIV transmission.

We also found that being HIV and AIDS stages had greater risk for death than those asymptomatic. This is the natural history of HIV/AIDS disease in human; those at the HIV and AIDS stages have a greater chance of death than those at the early infection stage[16-18]. However, early in the HIV/AIDS epidemic in Thailand, people who knew their HIV status very often decided to commit suicide. Therefore, HIV positive and AIDS stages had a greater proportion of death than the asymptomatic stage. This is consistent with a report by Lotrakul[19] that the major cause of death among the HIV/AIDS patients in Northern Thailand was suicide. Porapakkham et al[20], Guadamuz et al[21], Schlebusch et al[22], Bundhamcharoen et al[23], and Chutinantakul et al[24] also reported that suicide was most prevalent in the Upper Northern Thailand region, where HIV infection was related to the high prevalence of suicide and was the major cause of premature death.

The hill tribes of Thailand are minority groups with specific needs due to their language, cultural and social differences. Coates et al[25] reported that using specific community-based social and behavioral counseling, as well as voluntary testing, could reduce the HIV incidence in Thailand and Africa. Thato et al[26] also reported that a brief Peer-Led HIV Prevention Program significantly increased knowledge of preventive behaviors and motivated participants to have a better attitude toward preventive behaviors, better subjective norms, and greater intention to practice preventive behavior among school children in Bangkok, Thailand. Rojanawiwat et al[27] reported that the National Access to Antiretroviral Program reduced the number of opportunistic infections, especially PCP and TB, in Thai people living with HIV/AIDS.

Conclusion

In conclusion, the present study indicates that being the Karen and Kmong tribes had a greater risk of death than the Yao, and patients who did not receive ARV had less opportunity to survive compared to those who received ARV. Our study suggests an urgent need to consistently implement HIV control programs with an appropriated method for the Thai Hill tribe.

What is already known on this topic?

There are many factors related to death among the HIV/AIDS in general Thai people such as TB infection and accessibility of ARV including social support from surrounding of the patients.

What this study adds?

This report described the scenario of factors related to death among the HIV/AIDS hill tribe population in Thailand. Being different of tribes and having some risk behaviors such as IDU are the factors related to death among these groups of population.

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Potential conflicts of interest

None.

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ปัจจัยที่มีผลต่อการมีชีวิตในกลุ่มผู้ติดเชื้อเอดส์ในกลุ่มประชากรชาวเขา ประเทศไทย

ธวัชชัย อภิเดชกุล

วัตถุประสงค์: *การศึกษาย้อนหลัง เพื่อประเมินสถานการณ์และปัจจัยที่มีผลต่อการตายในกลุ่มประชากรชาวเขาผู้ติดเชื้อเอชไอวี/เอดส์ ภาคเหนือ ประเทศไทย*

วัสดุและวิธีการ: *การเก็บข้อมูลอย่างเป็นระบบจากระบบคลินิกยาต้านไวรัส ข้อมูลจากบันทึกผู้ป่วยนอก และข้อมูลจากห้องปฏิบัติการ จากโรงพยาบาล 16 แห่ง ในจังหวัดเชียงราย โดยเก็บข้อมูลผู้ติดเชื้อที่เป็นชาวเขาตั้งแต่รายแรกจนถึง พ.ศ. 2553 พหุสมการถดถอย ใช้ในการพยากรณ์ความสัมพันธ์ที่ค่าความผิดพลาด 0.05*

ผลการศึกษา: *จำนวนผู้ติดเชื้อและผู้ป่วยเอดส์ทั้งหมด 3,130 ราย ที่เข้าร่วมการศึกษา ส่วนใหญ่เป็นอาข่า (ร้อยละ 46.0) ตามด้วย ลาหู่ (ร้อยละ19.7) ร้อยละ 54.6 เป็นเพศชาย ร้อยละ 44.6 เป็นกลุ่มอายุ 26-35 ปี ปัจจัยเสี่ยงต่อการติดเชื้อ คือ เพศสัมพันธ์ (ร้อยละ 91.7) ร้อยละ 33.3 ยังมีชีวิตอยู่ ณ วันที่เก็บข้อมูล ร้อยละ 30.7 เป็นผู้ติดเชื้อวัณโรค ปัจจัยที่มีผลต่อการมีชีวิตรอด คือ เพศหญิงมีชีวิตรอดมากกว่าเพศชาย (adjusted OR = 1.41, 95% CI = 1.19-1.66) กลุ่มผู้ที่ติดเชื้อโดยมารดาสู่ทารกและ การฉีดยาเข้าเส้น มีโอกาสมีชีวิตรอดมากกว่ากลุ่มที่ติดเชื้อทางเพศสัมพันธ์ (adjusted OR = 2.05, 95% CI = 1.56-2.18 และ adjusted OR = 8.45, 95% CI = 1.55-46.13)*

สรุป: *ประเทศไทยต้องพัฒนารูปแบบการดูแลสุขภาพในกลุ่มผู้ติดเชื้อเอดส์เพื่อป้องกันการตายในระยะแรกของการติดเชื้อในกลุ่ม ประชากรชาวเขา*
