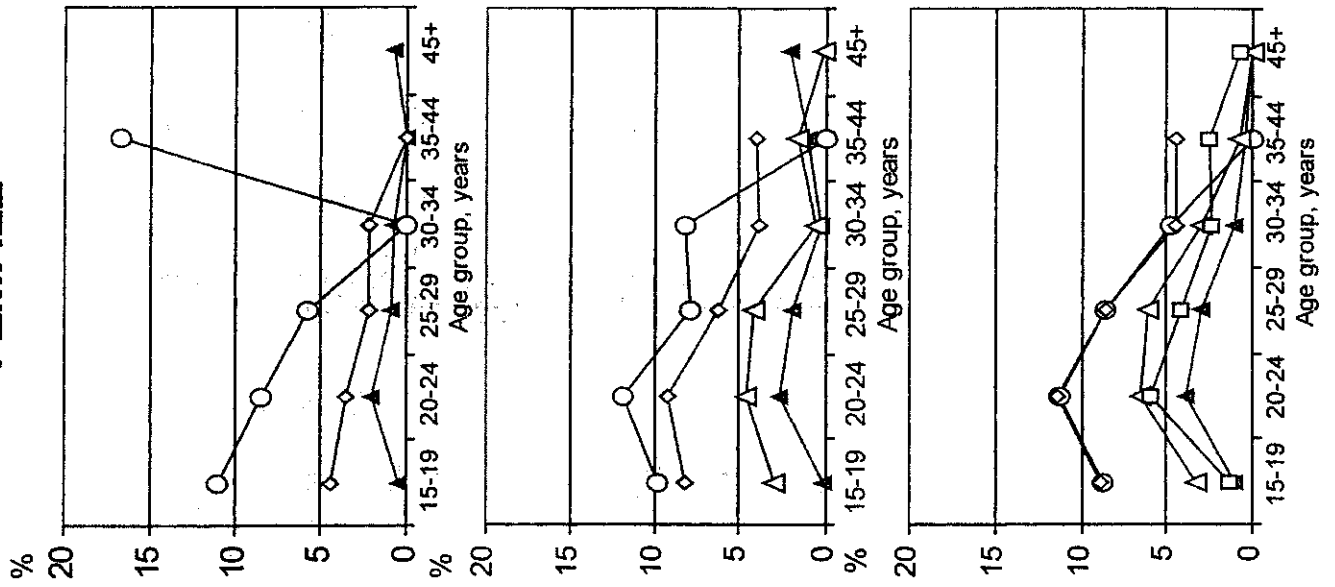
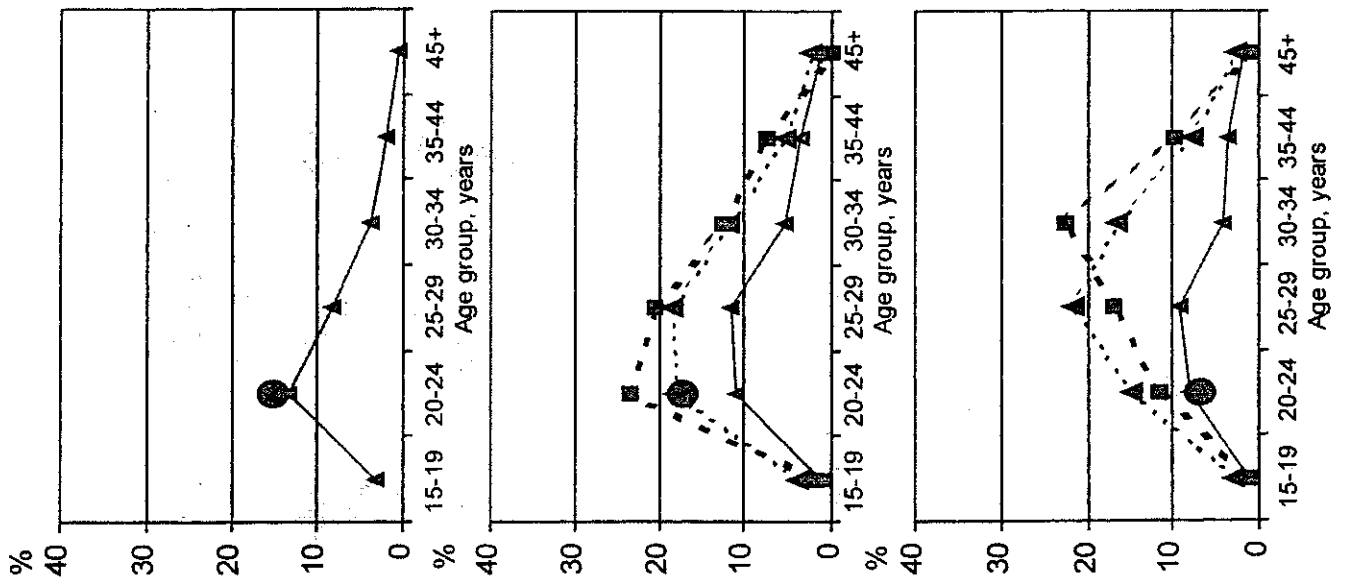


Figure 1

FEMALE



MALE



1990-1991

1992-1993

1994-1995

Figure 2

MALE

FEMALE

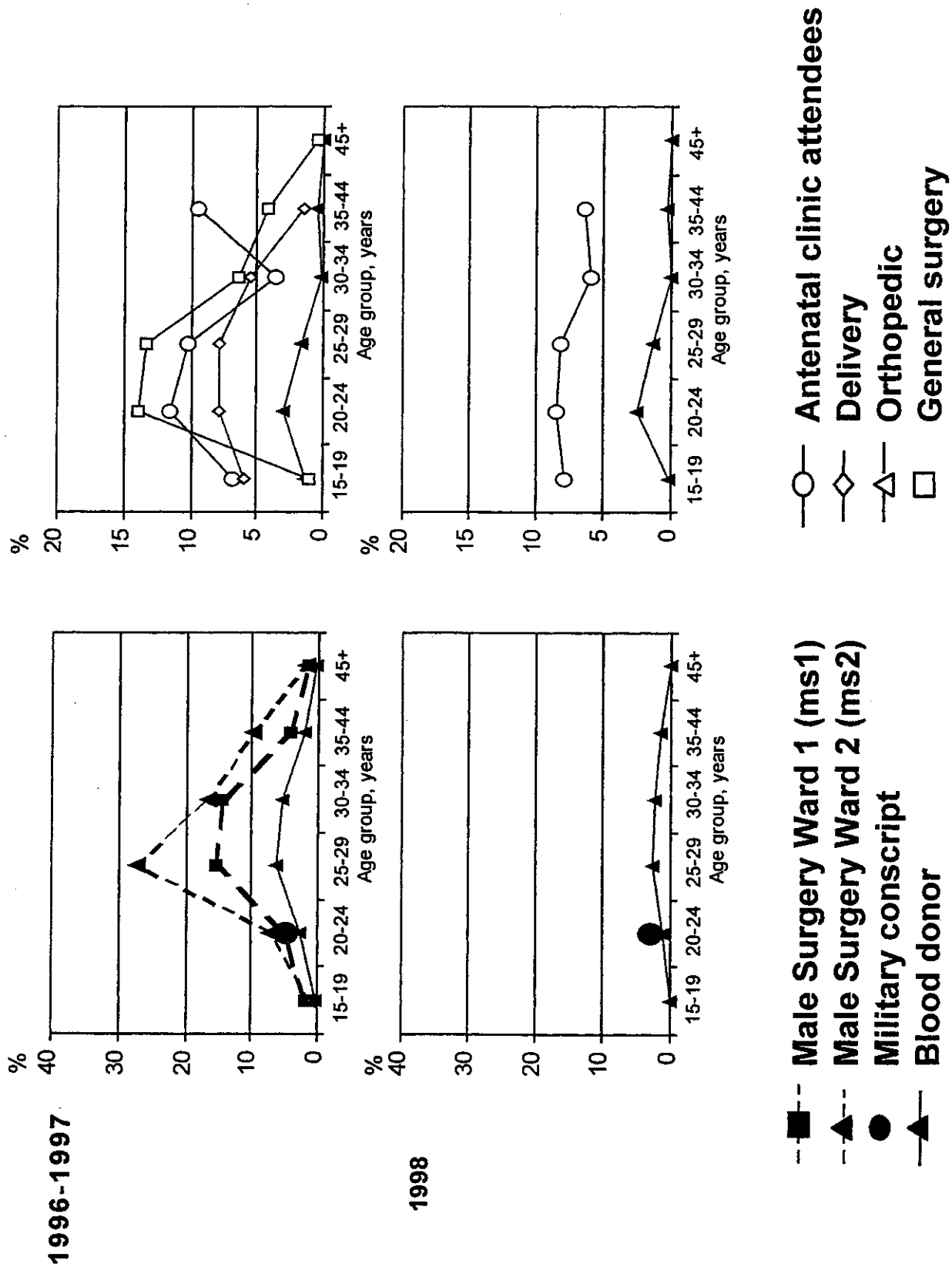


Figure 2

DCC コホート研究参加者の CD4 レベル

チェンライ県では、表1のように、14の郡病院に HIV 陽性者のためのデイケア-センター (DCC) が設置されている。結核罹患率及び死亡及びその関連要因を分析するためのコホート研究を開始した。

2002年9月から2002年11月にかけて、メチャン郡病院で第一回目の集団検査を実施した。参加者は204名(表2)、CD4レベルは表3,4の通りである。この時点で死亡者を除くと約500名生存していると推定されるもののうち、207名の検査が終了し、現在残りの参加者のリクルートを開始している。

第一回目の検査では、既にARVを処方されているものは含まれていなかったが、約半数(52%)が、CD4カウント200以下であった。

表1 郡別、DCC登録者(累積)

District	Population 20-45 years old	Total Population	DCC members
Municipality	35,312		-
Outside municipality	56,587		-
Khun Tan ^s	16,959	34,303	258
Padad	12,651	26,868	149
Phaya Meng Rai ^s	20,342	42,935	518
Phan	58,512	132,061	415
Mae Pha Luang	16,983	76,744	11
Wiang Chiang Rung	12,918	26,685	101
Wiang Papao	29,570	69,155	474
Chiang Khong	29,874	67,252	203
Chiang Sean	22,347	52,068	296
Theong	38,726	84,420	296
Wiang Kan	12,362	33,671	183
Mae Chan	41,238	110,028	878
Mae Lao	14,687	31,993	262
Mae Sruiay	29,070	76,917	433
Mae Sai ^s	34,641	80,991	221
Doi Luang#	9,877	21,905	-
Wiang Chai#	21,878	45,065	-
Total	514,534	1,229,445	4,698

^s There are additional "Community DCC"

#Day Care exist but yet entered data.

表 2 参加者の年齢分布

Age Group	No	%
5-14	11	5.4
15-24	10	4.9
25-34	107	52.5
35-44	64	31.4
45-54	10	4.9
55-	2	1.0
Total	204	100.0

表 3 CD4 分布(全年齢)

CD4	No.	%	累積%
0- 49	58	28.02	28.02
50- 99	23	11.11	39.13
100-199	27	13.04	52.17
200-299	22	10.63	62.80
300-399	27	13.04	75.85
400-499	19	9.18	85.02
500-	31	14.98	100.00
Total	207	100.00	

表 4 年齢別 CD4 分布

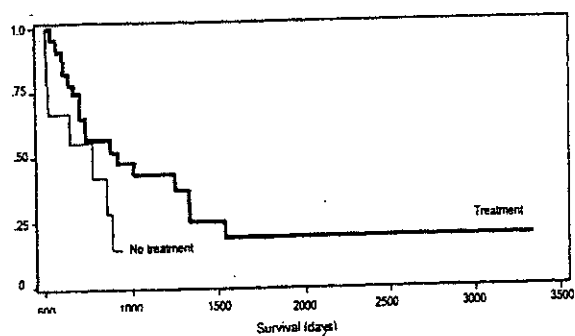
CD4	0-14	15-24	25-34	35-44	45-54	55-	All age
0- 99	2	3	48	24	3	0	80
100-199	1	2	13	7	2	0	25
200-299	2	0	9	8	2	1	22
300-399	0	1	15	8	2	1	27
400-	6	3	22	17	1	0	19
Total	11	10	107	64	10	2	204

ciency virus (HIV) infected patient is considered to be definitive evidence of disease, mandating treatment.

Methods: In a cohort of all HIV-positive patients with respiratory MK isolates from 1992-1999, we retrospectively studied pulmonary MK and the effect of its treatment in HIV-infected patients at the San Francisco General Hospital.

Results: 61 of 100 patients have been reviewed to date. The median (range) CD4 count was 26 (0-795), and 31 were treated with antimycobacterials. Those treated had more positive cultures (3 versus 1, $P = 0.001$), and longer follow-up (373 versus 177 days, $P = 0.09$). The treated group displayed a trend toward higher mortality (71% versus 62%, $P = 0.43$). Treated non-survivors expired at a median of 7.5 (1-42) months compared with 4 (0-13) months in untreated non-survivors ($P = 0.01$). Nine treated survivors (2 with a single positive culture) were alive at 21 (2-94) months, compared with 11 untreated survivors (9 with a single positive culture) at 27 (0-67) months ($P = 0.97$). The figure presents survival for patients with ≥ 2 positive cultures.

Conclusions: Initial results suggest that treatment improves survival, but some patients with advanced HIV-related immunosuppression and respiratory MK may survive prolonged periods without antimycobacterial therapy.



111-PD New TB screening service for people living with HIV/AIDS (PLWHA) in Phnom Penh

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Background: To respond to growing problem of TB/HIV, CENAT launched TB screening service for PLWHA in Phnom Penh in November 2001 supported by JICA. Clients are PLWHA under AIDS Home Care Network that provides basis care to PLWHA.

Method: PLWHA are invited to CENAT. Interviews, chest X-ray and physical examinations are basic components of the service. Those who are suspected TB received sputum examinations including culture, tuberculin test and other examinations according to

necessity, while others are provided TB health education and cards for regular follow up after six months and/or anytime they have respiratory symptoms.

Results: 14 out of 15 home care service teams participated. By the end of February 2002, 773 PLWHA, 55% of their clients, have visited. TB was diagnosed in 105 (13.6%); PTB S+: 29 (27.6%); PTB S-C+: 10 (9.5%); PTB S-C-/or under exam: 46 (43.8%) and extra-pulmonary: 20 (19.0%). The diagnosed patients were promptly referred to DOTS services including Home Delivery DOTS by CENAT.

Discussions: High prevalence of TB among PLWHA was observed. The service can promote early case detection and proper management Collaboration with Home Care Network is crucial in high TB/HIV prevalence setting. Link with VCT would be sought, and IPT feasibility study should be started.

191-PD DOTS strategy to assist for HIV-infected TB patients in Donetsk Region of Ukraine

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TB epidemiological situation in Donetsk region of Ukraine has been deteriorating for the last 10 years. Incidence of TB infected people increased up to 257 per 100 000 of population in 2001. Compared to 1998, the number of HIV infected persons increased 1.5 times as much.

First cases of HIV in TB patients in Donetsk Region were registered in 1997. In 1999-2001 250 HIV-infected TB patients were found in total. The principal clinical form was infiltrative pulmonary TB—164 patients (66%), cavities were obtained in 152 patients (61.4%), however the quantity of smear-positive cases was 85 (34%).

Till 2002 there was no DOTS in Donetsk: 144 (58%) of all patients received four TB drugs, 66 (26%) were treated with three drugs, the rest of patients received less than three drugs.

Extremely poor effectiveness of TB treatment was registered. The main reason was an irregular intake of TB medicines. These patients were considered as a vulnerable category of the population in Donetsk Region.

To our mind only DOTS implementation allows to improve TB situation in region because of standard schemes of directly observed chemotherapy in all cases of TB+HIV-infected patients.

A Review of Tuberculosis Follow-up Results at a NGO hospital in Phnom Penh, Cambodia before NTP/DOTS collaboration

K. Kimura, S. Thai, P. Sok, S. J.G.Hines

Abstract

SETTING: Sihanouk Hospital Center of HOPE, hospital supported by NGO, Phnom Penh, Cambodia

OBJECTIVE: Treatment of tuberculosis patients using ambulatory treatment with supervision once weekly during the intensive phase and once monthly during the continuation phase.

METHOD: Review of patient charts and analyzing by Student's *t* test.

RESULT: We followed up 89 HIV-negative TB cases and 158 cases. Treatment success cases (cure and treatment complete cases) were 48.3% and 41.2% in HIV-negative and HIV-positive TB cases, respectively. Comparisons of treatment success rates among the group from Phnom Penh city and the one from provinces, and among HIV-positive TB patients and HIV-negative TB patients had no statistical significance.

CONCLUSION: Treatment results in NGO hospital in Cambodia was far from national level. TB practice with many severe cases was challenging without DOTS setting and NTP network. Expanding DOTS to NGO/private sector and building up wider treatment network is essential to improve NTP program and avoid creating Multi-drug resistant TB.

(KEY WORDS: NGO and private sector, NTP, DOTS expansion, TB and HIV co-infection)

Introduction

TB Statistics in Cambodia

Cambodia is one of 22 Tuberculosis high burden countries in the world. In 1999 the World Health Organization (WHO) estimated that 61,000 person developed tuberculosis each year in Cambodia, which is equivalent to 560 per 100,000 populations. The annual incidence of new smear-positive tuberculosis was estimated at 27,000, which is equivalent to 251/1,000,000 [1].

Affected by HIV high epidemic, TB/HIV co-infection is a quite serious issue in Cambodia. By WHO report, in Cambodia, HIV prevalence among Tuberculosis is 3% in 1999 and it is estimated to increase into 34% in 2010 [1]. Estimated new cases of TB with HIV co-infection are 2000 per year, equivalent to 10 –15% [2].

National TB Control Program, Cambodia

National Center for TB and Leprosy Control, Cambodia (CENAT) is working

keenly among challenging situation with weak national infrastructure and poor human resources, which was caused by three decades of civil war and the incredible massacre since 1970's. Though DOTS was adopted as all-hospitalized DOTS in 1994, health sector reform and re-building, and ambulatory DOTS expansion strategies have started in 2000. Latest national statistics in 2000 showed that case detection rate was still as low as 57% in smear positive pulmonary TB; in the contrary, treatment success rate is as high as 90% [1]. This gap between low case detection rate and high treatment success rate gives an assumption that there are many TB patients who come to private/NGO sector without knocking the door of NTP.

New five-year policies

Since Amsterdam conference of Stop TB in 2000, Cambodian NTP recently brought up the issue of collaboration with private and NGO sector. The 5 year strategy of NTP (2001 to 2006) is clearly saying that one of the objectives is collaboration with NGO/private sector and expanding DOTS to it. In the reality, Cambodian medical circumstance depends on international aid from both of government and non-government organizations for the much considerable part. Many poor people, especially people with living with HIV/AIDS (PWLHA) are taken care of by services run by NGO. In Cambodia, the medical statistic database network which is covering both of government and private/NGO sectors has not established yet. No data has been published about the reality of private and NGO medical practices.

Here we want to report the TB activity in Sihanouk Hospital Center of HOPE (SHCH), Cambodia, which is one of the active NGO charity hospitals located in Phnom Penh. Recently, this hospital was accepted as the first NTP registered DOTS site from private/NGO sector in Cambodia. The following data is before registration to NTP. There is no statistic data of the practices on tuberculosis from private and NGO sector nor reports published in Cambodia. We want to analyze the challenges and problem in private/NGO sector and seek the better goal to eliminate TB high epidemic.

Setting

SHCH is a general hospital locating at the center of Phnom Penh city. It is charity hospital run by NGO and private funds, and providing free medical care to the poor and needy. It is also emphasized to give high standard medical training to Cambodian medical professionals. This hospital is almost only one place for adults to access to free medical care to the poor, so many poor and sick patients come from all over the country as well as Phnom Penh city. In general, they are treating 5000 patients/month. Of this

number, 61% is coming from provinces. There are many cases of tuberculosis (8%) and HIV/AIDS (5%) patients among them, even though many typical pulmonary TB cases without severe complication are referred to CENAT and NTP in provinces. (The cases referred out to other NTP sites as TB was 362 in 1999.) Rest of them are registered to TB clinic, SHCH because of the following reasons: 1) critical Extra PTB such as TB meningitis, abdominal lymph node TB and peritonitis, pericarditis, which needed urgent start of TB treatment 2) HIV/AIDS patients followed up at SHCH 3) smear positive and negative pulmonary TB rejected by NTP with some reasons 4) pulmonary TB with complications such as severe diabetes mellitus, respiratory failure, *Pneumocystis Carinni* Pneumonia

Methods

All TB cases registered between from January 1999 to December 2000 in TB clinic, SHCH, were reviewed.

Doctors seeing patients were HIV doctors supervised by experienced expatriate technical advisors. Diagnosis criteria were followed to WHO Tuberculosis practice guidelines. Microscopic exam of sputum was performed in National Institute of public health, Cambodia, which results was not accepted by NTP. Acid-fast bacilli (AFB) smears of non-sputum samples were done in Pasteur Institute, Cambodia. Other laboratory examination and radiographic examinations such as Chest X-ray, Ultrasonography, blood tests, body fluid analysis, tissue biopsy were performed to support clinical diagnosis. Resistant TB cases were diagnosed clinically based on the evidence of treatment failure, without drug sensitivity test.

When critical patients needed hospitalization TB medicine was given as hospitalized DOTS. Discharged patients and other less critical patients were treated by ambulatory treatment with supervision weekly during the intensive phase and monthly during the continuation phase.

Addresses of both of patients themselves and responsible persons were registered, but hardly were telephone numbers. When the patients living in Phnom Penh city didn't come back to the clinic on their appointments, medical assistant tried to visit them according to the registered addresses. Actually, most of time those attempts were not succeeded because they changed their residence or they were hardly found in crowded slum communities.

Results

Total number of enrolled patients were 247 including 89 HIV-negative TB cases and 158 HIV-positive TB cases from 1999 to 2000.(Table 1) In HIV-positive TB group, there

was a tendency of younger age distribution, more men than women, more likely Phnom Penh citizens.

Many Extra pulmonary TB cases were seen in not only HIV-positive group but also in HIV-negative group (Table 2). The number of pulmonary TB cases were less than extra pulmonary TB cases because less severe, mostly HIV-negative pulmonary TB cases were referred out to other NTP sites; 362 cases were referred out in 1999.

Positive rates of AFB smears among HIV-positive TB cases were 60% and 91% in pulmonary TB and lymph nodes TB in respectively. There was no positive sample in CSF and pleural effusion (Table 3).

The treatment success cases (cured and treatment complete cases) were only 43 (48.3%) of HIV-negative TB cases and 65 (41.2%) of HIV-positive TB cases (Table 4). Comparisons among the group from Phnom Penh city and the one from provinces, and among HIV-positive TB patients and HIV-negative TB patients had no statistical significance (Table 5).

Discussion

We identified the following problems: 1) There is a severe problem of treatment compliance in our hospital. 2) The patients from the provinces are difficult to follow up. 3) Severe and Extra-pulmonary TB cases that are started on TB treatment during hospitalization need to come in follow-up in SHCH because NTP does not accept the diagnosis done in the out of NTP.

SHCH sees difficult TB patients, such as HIV infected, Extra-pulmonary or referral in cases coming from provinces. TB co-infection, although it did not participate to NTP. Treatment success rate of around 40% in SHCH was far from national level of 90%.

We presumed that HIV infection and longer distance of patients' residence might be the risk factors for treatment interruption. It is reported that HIV positivity is one of the risk factor [3] and that it steadily increases the mortality of TB patients [4]. But in our clinic there were no significant difference in HIV sero-status and address of patients. Some reasons are considered; small numbers of enrolled patients, late detection of patients either with HIV-positive or negative, and either from Phnom Penh city or from provinces.

In order to solve those problems, we are thinking the strategy as following; 1) to improve our patients record system; 2) to expand our staff to create more structured TB program; 3) to cooperate with NTP and expand treatment network with other provincial sites; 4) to start DOTS program for Phnom Penh resident patients in conjunction with HIV Home Care Team network.

As for the strategy 4) above, SHCH has started new TB-DOTS clinic since

September 2001. Collaboration and referral relationship with NTP are going smoothly so far and we hope that we can report the treatment results improved by intervention with DOTS and NTP participation later.

In Cambodia, it is unknown that how many patients are seen by private sectors and how they were treated. Some research in Uganda showed that among 114 private and public clinics, none of them met all standards for appropriate tuberculosis care and only 24% of them adhered to WHO-recommended treatment guidelines, although 41% of those clinics were seeing more than three new TB cases monthly. [5] Same situation is concerned in Cambodia. Urgent research on current situation of private/NGO sector practice and standardizing national TB practice to WHO recommendation should be encouraged.

Counseling the patients and their family members may have a great impact on treatment compliance. Intervention trial done in a hospital in a province, Pakistan showed encouraging improvement of treatment adherence by intensive counseling. [6] Creating counseling program covering the problem in Cambodian health seeking behavior could be one of the powerful strategies regardless of DOTS setting.

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Table 1: General information of TB practice in SHCH¹ (Jan. 1999 ~ Dec. 2000)

		HIV-negative TB	HIV-positive TB
Total number of patients		89	158
Age	mean	40.4	33.4
	range	15 ~ 83	22 ~ 56
	≤ 20	17 (19.1%)	0
	21 ~ 30	12 (13.5%)	64 (40.5%)
	31 ~ 40	20 (22.5%)	68 (43.0%)
	41 ~ 50	17 (19.1%)	24 (15.2%)
	≥51	23 (25.8%)	2 (1.3 %)
Sex	Male	45 (50.6%)	104 (65.8%)
	Female	44 (49.4%)	54 (34.2%)
Address	Phnom Penh	28 (31.5%)	97 (61.4%)
	Province	61 (68.5%)	61 (38.6%)
Type of Case	New	77 (86.5%)	149 (94.4%)
	Relapse	8 (9.0%)	4 (2.5%)
	Failure	0	1 (0.6%)
	Not recorded	4 (4.5%)	4 (2.5%)
TB forms	PTB ²	20 (22.5%)	43 (27.2%)
	Extra PTB	62 (69.6%)	94 (59.5%)
	PTB+Extra PTB	3 (3.4%)	21 (13.3%)
	Not recorded	4 (4.5%)	0

¹ SHCH: Sihanouk Hospital Center of HOPE

² PTB: Pulmonary tuberculosis

Table 2. Details of TB cases in SHCH³(Jan. 1999 ~ Dec. 2000)

		HIV-negative TB (n=89)	HIV-positive TB (n=158)
Number of PTB ⁴ cases		23	64
AFB ⁵ smear	Positive	3 (13.0%)	18 (28.1%)
	Negative	3 (13.0%)	12 (18.8%)
	Not recorded	17 (74.0%)	34 (53.1%)
Number of ExtraPTB cases		65	115
Number of Sites	1	63 (96.9%)	84 (73.1%)
	2	2 (3.1%)	23 (20.0%)
	≥3	0	6 (5.2%)
	Not recorded	--	2 (1.7%)
Detail of diseases			
	Lymph nodes	7 (10.8%)	36 (24.2%)
	Abdominal lymph nodes	2 (3.0%)	68 (45.6%)
	Meningitis	18 (27.8%)	12 (8.1%)
	Miliary TB	2 (3.0%)	4 (2.7%)
	Pleural effusion	15 (23.1%)	24 (16.1%)
	Myositis	3 (4.6%)	2 (1.3%)
	Arthritis	4 (6.2%)	1 (0.7%)
	Pott's disease	5 (7.7%)	2 (1.3%)
	Pericardial effusion	4 (6.2%)	--
	peritonitis	3 (4.6%)	--
	others	2 (3.0%)	--

³ SHCH: Sihanouk Hospital Center of HOPE

⁴ PTB: pulmonary tuberculosis

⁵ AFB: Acid-fast bacilli

Table 3. Acid-fast bacilli (AFB) smear result among HIV-positive TB cases

TB from	# of cases	sample	# of case AFB examined	AFB (+)	AFB (-)	Not recorded
PTB ⁶	66	sputum	30	18 (60%)	12 (40%)	0
Lymph nodes	36	LN aspiration ⁷	11	10 (91%)	1 (9%)	0
Meningitis	12	CSF ⁸	7	0	5 (71%)	2 (29%)
Pleural effusion	24	pleural effusion	9	0	7 (78%)	2 (22%)

⁶ PTB: pulmonary TB

⁷ LN: lymph node

⁸ CSF: cerebrospinal fluid

Table 4. TB treatments and outcome in SHCH ⁹(Jan. 1999 ~ Dec. 2000)

		HIV-negative TB (n=89)	HIV-positive TB (n=158)
Category of Treatment	1	72 (80.9%)	152 (96.2%)
	2	2 (2.2 %)	4 (2.5 %)
	3	7 (7.9 %)	2 (1.3 %)
	Not recorded	8 (9.0 %)	--
Outcome	Cured/completed	43 (48.3%)	65 (41.2%)
	Failure	--	1 (0.6 %)
	Defaulter and unknown ¹⁰	45 (50.6%)	92 (58.2%)
	Died	1 (1.1 %)	--

⁹ SHCH: Sihanouk Hospital Center of HOPE

¹⁰ Unknow means that outcome is not recorded.

Table 5. Treatment success and Address in SHCH (Jan. 1999 ~ Dec. 2000)

Address	HIV serology	# of enrolled TB cases	# of treatment success cases
Phnom Penh	HIV-positive	97	43
	HIV-negative	28	13
Province	HIV-positive	61	22
	HIV-negative	61	30

*No statistical difference

カンボディアの結核患者における HIV-1分子疫学

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浜口行雄²⁾、小野崎郁史³⁾、吉原なみ子¹⁾

- 1) 国立感染症研究所エイズ研究センター
- 2) シスメックス株式会社
- 3) JICAカンボディア結核対策プロジェクト

目的

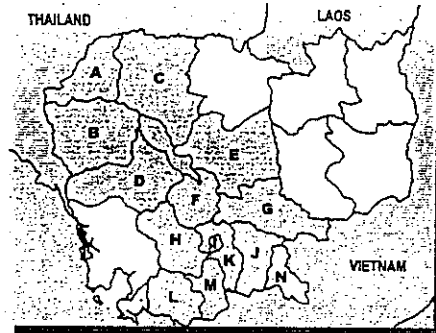
カンボディアの結核患者におけるHIV
の感染状況を調査し、HIV-1のサブタ
イプを解析して感染ルートを検討

材料

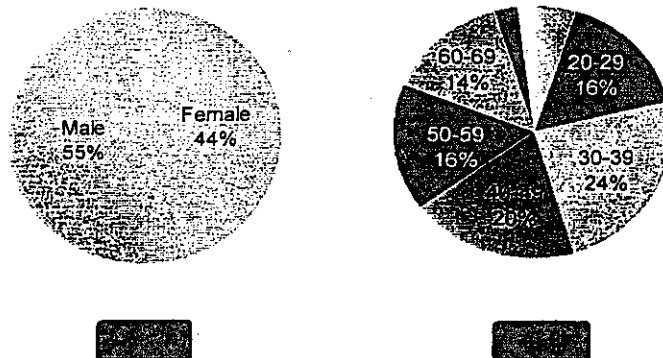
2001年にカンボディアの14の州か
ら集められた結核患者435例

今回の調査地域

Banteay Meanchey	37
Battambang	42
Siem Riep	46
Pursat	20
Kompong Thom	17
Kompong Chhnang	18
Kompong Cham	60
Kompong Speu	30
Phnom Penh	60
Prey Veng	12
Kandal	19
Kamport	18
Takeo	30
Svay Rieng	26
Total	377



対象者の一般情報



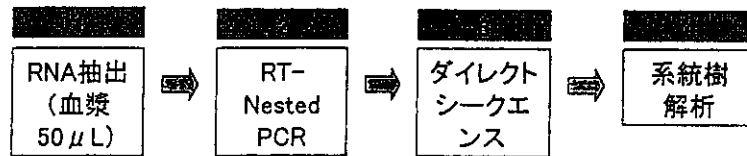
方法

I. HIV陽性率の調査

HIV-1/2抗体の検査

使用試薬 ランリームHIV-1/2
(シスメックス株式会社)

II. HIV-1陽性検体のサブタイプの解析



Primers

Primer	Sequence	Position	Size
GF62	AAG GAT AGA GGT AAA AGA CAC CA	607-629	752
GF63	TAG CTG CTG GTC CCA ATG CTT TTA	1336-1359	
GF64	ATG GTA CAT CAG GCC ATA TCA CCT A	734-758	474
sk104	CTT TTG GTC CTT GTC TTA TGT C	1187-1208	
ES3	CCA ATT CCC ATA CAT TAT TG	6471-6491	770
ES4	AAT TCA CTT CTC CAA TTG TC	7221-7241	
M13RPJA10	CAG GAA ACA GCT ATG ACC AAA TGG CAG TCT AGC AGAAG	6640-6659	395
-21M13JA12B	TGT AAA ACG ACG GCC AGT TAG AAA AAT TCC CCTCCA CA	6980-6999	
M13RP1	CAG GAA ACA GCT ATG ACC	-	-
-21M13	TGT AAA ACG ACG GCC AGT	-	-

結果

I. HIV陽性率

Banteay Meanchey	37	10	27.03%
Battambang	42	9	21.43%
Siem Riep	46	6	13.04%
Pursat	20	3	15.00%
Kompong Thom	17	1	5.88%
Kompong Chhnang	18	0	0.00%
Kompong Cham	60	2	3.33%
Kompong Speu	30	4	13.33%
Phnom Penh	60	15	25.00%
Prey Veng	12	0	0.00%
Kandal	19	3	15.79%
Kamport	18	1	5.56%
Takeo	30	0	0.00%
Svay Rieng	26	0	0.00%

カンボディアの結核患者におけるHIV陽性率

