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Provider Initiated Testing and Counseling (PITC) Strategy Increased Coverage of HIV detection among TB Patients

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Kata Kunci

Pasien TBC;
PITC;
Kota dengan beban TB-HIV tinggi;
HIV positif

Abstrak

Indonesia merupakan salah satu dari enam negara dengan beban TB-HIV yang tinggi. Prevalensi kasus TB-HIV sebanyak 4,9%. Penelitian ini bertujuan untuk menilai implementasi PITC pada wilayah dengan cakupan PITC tinggi dan cakupan PITC yang rendah pada pasien TB-HIV. Metode penelitian deskriptif, analitik, potong lintang dengan metode consecutive sampling. Data yang digunakan dalam penelitian ini merupakan data sekunder dari bulan Januari hingga Desember 2017 dari sistem pelaporan rutin oleh puskesmas dan dinas kesehatan daerah di 5 dari 23 kota dengan beban TB-HIV yang tinggi. Berdasarkan hasil penelitian Jumlah pasien TB yang terdaftar di 5 kota sebesar 16,097 pasien, sedangkan pasien yang telah menjalani program PITC sebesar 8022 pasien (2,365 dari kota dengan PITC rendah dan 5657 dari PITC tinggi), dan 3,5% pasien merupakan HIV positif. Selain itu, perbandingan pasien TB-HIV di wilayah PITC tinggi dibandingkan dengan wilayah PITC rendah adalah 4,3:2,6. Laki-laki memiliki risiko dua kali lipat mendapatkan hasil HIV-positif dibandingkan perempuan. Selain itu, pasien usia produktif lebih berisiko terinfeksi HIV dibandingkan dengan kelompok usia lainnya. Sebesar 78-94% laki-laki dengan rentang usia 26-36 tahun berisiko terinfeksi HIV. Penerapan PITC di negara dengan beban TB/HIV tinggi menunjukkan peningkatan deteksi pasien TB-HIV, namun masih diperlukan tatalaksana pengobatan ARV untuk menurunkan angka kematian.

Keywords

TB patients;
PITC;
The highest-burden TB-HIV cities;
HIV positive

Abstract

Indonesia is one of the six countries with a high burden of TB and HIV. The prevalence of TB-HIV cases at all ages is as much as 4.9%; The study aimed to provide an assessment of PITC implementation in high coverage and low coverage in HIV detection among TB patients. This study descriptive, analytic, cross-sectional with the consecutive sampling method. Data used in this research was secondary data collected from January until December 2017 conducted in 5 of the 23 cities with a high burden of TB-HIV. Using a routine reporting system by primary health care and regional health service in the district. The total sample size included TB patients registered in 5 cities 16.097 patients, 8022 patients (2.365 from low PITC, 5657 from high PITC) TB patients who had received the PITC program of this 3,5% were HIV positive. Additionally, was detected by percentage among TB patients in the high-coverage PITC area compared to in the low-coverage PITC area was 4.3:2.6. Male patients had a double risk of having HIV-positive results compared to female patients. Furthermore, the analysis also showed that productive age patients are more likely to have HIV infection compared to other age groups. Male sex aged 26 to 36 years 78-94% of them were at risk of having HIV infection. The implementation of PITC in countries with high TB / HIV burden has shown an increase in TB-HIV patient detection but still needs to be followed by ARV treatment to reduce mortality.

Introduction

Tuberculosis is a treatable disease but it remains the leading cause of death among persons living with HIV/AIDS(PLHIV) (1). The main cause of death from a single infection for HIV/AIDS is TB infection which is one of the ten causes of death worldwide. TB has caused an estimated 1.6 million death including 1.3 million death among HIV-negative people and 300,000 death from TB has been noted among HIV-positive subjects (2,3). Indonesia is one of the six countries with a higher TB/HIV. (Angola, Botswana, Brazil, Guinea-Bissau, Indonesia) as listed by the WHO(2). PLHIV have a 20-37 times greater risk of getting TB infection(4). In Indonesia, the HIV prevalence of new and relapse TB cases at all ages is 0 to 4.9%(2). In 2017, the percentage of PLHIV and Tuberculosis who were being treated for both diseases was 5.4% and the HIV prevalence of PLHIV among adults aged 15-49 years was 0.5% (5).

The following facts indicate TB-HIV burden trends in Indonesia: there were 446,732 reported Total cases notified TB Patients in Indonesia, in 2017. The incidence rate of TB-HIV cases was 14 (7.7-21) per 100,000 population; while the TB-death rate among HIV-positive people was 3.6 (1.9-5.8) per 100,000 population. Use of rapid diagnostic test was available at the time of diagnosis in 8,843 (2%) patients and HIV status was determined in 129.552 (29%) TB patients; among them, HIV-positive was detected in 7,729 (6%) patients (2). Furthermore, in 2016, the rapid diagnostic test at the time of diagnosis was available only in <1% of patients. The HIV status was determined in only 50,479(14%) patients and among them, HIV-positive results were found in 4330 (9%) patients (6). The indicator of the successful National Tuberculosis-HIV Collaborated Action Plan 2015-2019 is reducing the HIV burden in TB patients and it has an increasing target of TB patients with known HIV status of 30% in 2016 to 40% in 2017 (7). Unfortunately, the Provider Initiated Testing and Counseling (PITC) strategy has only been released in 2016 and since then it has been implemented seriously in healthcare facilities. Sub Directorate National TB and HIV Program at the Ministry of Health, Republic of Indonesia have given their consent to collaborative work to strengthen the TB-HIV joint activities at all levels. The comprehensive intervention has been applied in 5 of 23 high-burden TB-HIV cities. One of the interventions includes providing HIV diagnostic tests and ARV treatment in healthcare facilities by 2020.

PITC is an important method used to identify HIV-infected individuals who require medical care. WHO-UNAIDS and Nations program in Indonesia on TB-HIV provider-initiated HIV testing and counselling (PITC) suggests that it should be recommended by health care providers as a part of normal standard care provided for patients. It should be routine care regardless of patients' signs and symptoms of underlying HIV infection or the patient's reason for presenting to the health facility. These include, but are not necessarily limited to, tuberculosis and other conditions specified in the WHO HIV clinical staging system, especially cities in with the highest burdens with TB-HIV(8–10).

Monitoring and evaluation are essential to implement the PITC strategy. Furthermore, additional focused assessments of specific aspects of programming are also necessary. Regular evaluation of health care provider performance and patient satisfaction (including testing processes, pre-test information, consent process, and post-test counselling) can help to improve the effectiveness, acceptability and, quality of HIV testing and counselling services (9).

Studies that have been conducted in several countries have demonstrated that applying the PITC strategy may enhance the detection of HIV-positive results in TB patients (11–20),(21,22). The Global Report Tuberculosis Indonesia profile showed an increased percentage of TB patients who were aware of their HIV status. In 2014 and 2015, PITC hasn't implemented, and only around 5-11% of TB patients know their HIV status. (23,24) From the end of 2016 until 2018, PITC has been achieved. The increase of known HIV status in TB patients before PITC (in 2014-2016) was between 3-7%. Meanwhile, from 2017 to 2018 the rise of knowing HIV status in TB patients was as much as 10-17%.(2,6,23–25).

Although the PITC program has been delivered well for increasing testing of HIV it has not been available in all primary health care facilities across the country (26). Moreover, the increased discovery of TB-HIV patients through PITC is still not followed by significantly increased ARV treatment. In 2014 until 2016, coverage of TB-HIV on ARV treatment around 25% of all TB-HIV patients.(6,23,24) While in 2017 until 2018, coverage of TB-HIV on ARV treatment around 35% of all TB-HIV patients.(2,25) The study aimed to provide an assessment of PITC implementation in high coverage and low coverage in the context of early detection of HIV in TB patients, evaluate ARV treatment as PITC output and reduce the mortality rate from TB-HIV, particularly in 5 cities with the highest TB and HIV burden in Indonesia.

Methods

Research Design

Our study was a descriptive-analytic study using a cross-sectional design. Our study aimed to evaluate the effectiveness of the National Program of PITC, to identify increased coverage of TB patients with known HIV status from 5 cities with high implementation of PITC compared to 2 cities with low implementation of PITC.

Sampling method

The sample of our study were TB patients who underwent PITC and they received their results from HIV testing. The total number of samples was 8.210 TB patients from 3 cities with high PITC coverage and 7.875 TB patients from 2 cities with low PITC coverage. Three towns have chosen cities with a high burden of TB and HIV with a real records system; they have implemented PITC more than 60% and in two towns high burden of TB and HIV with a real records system, the low coverage of PITC is less than 40%. After the selection of cities, the samples were obtained using the consecutive sampling method. The inclusion criteria; The patients aged 15 to 49 years old who had a bacteriological diagnosis or clinical diagnosis of pulmonary or extrapulmonary TB, those with or without a history of previous treatment (new or old cases) and had undergone the PITC program. It reported primary data was collected from January - December 2017.

Research Process

Patients came to healthcare facilities and they had a bacteriological or clinical diagnosis of a new or old case of TB. When they were categorized as old cases, their register of TB 01 form would be checked to determine whether they had gotten the PITC program or not. Afterwards, an officer would initiate the PITC program and provide counselling on TB infection and its association with HIV infection. When the patients were willing to undergo HIV testing, written informed consent would be obtained and a reference letter for laboratory testing would be issued. When there was an HIV testing unit available at any particular healthcare facility, the patients underwent HIV testing for R1, R2 and R3. However, in health facilities that did not have an HIV testing unit, the TB patients were referred to any health facilities where the HIV testing unit was available. The laboratory test results were sent to the TB officer.

TB officers at the healthcare facilities received PITC training, which included documenting and reporting using the TB form issued by the Ministry of Health, Province and District Level Health Office. Data of each patient reported in TB 01 form was then summarized into TB 07 and TB 08 forms, which subsequently were reported to the District Level Health Office and further conveyed to the ITIS at the Ministry of Health or any healthcare facility that has direct access to the ITIS Ministry of Health.

When the results were positive, the TB patients were referred to the HIV unit at a particular health facility to receive TB and HIV treatment. However, if the health facility did not have an HIV unit, patients were referred to any other health facility which had an HIV unit to receive HIV treatment. If the patients were not willing to undergo HIV testing, the PITC program was carried out again during their visit to the clinic when they came to take their medications. Each patient has a TB 01 form and using the form, the TB officer documented all of the patients' data including sputum examination, TB diagnosis, HIV test counselling (PITC), referral for laboratory test, results of HIV test, TB and ARV treatment of the healthcare facility. (figure.1)

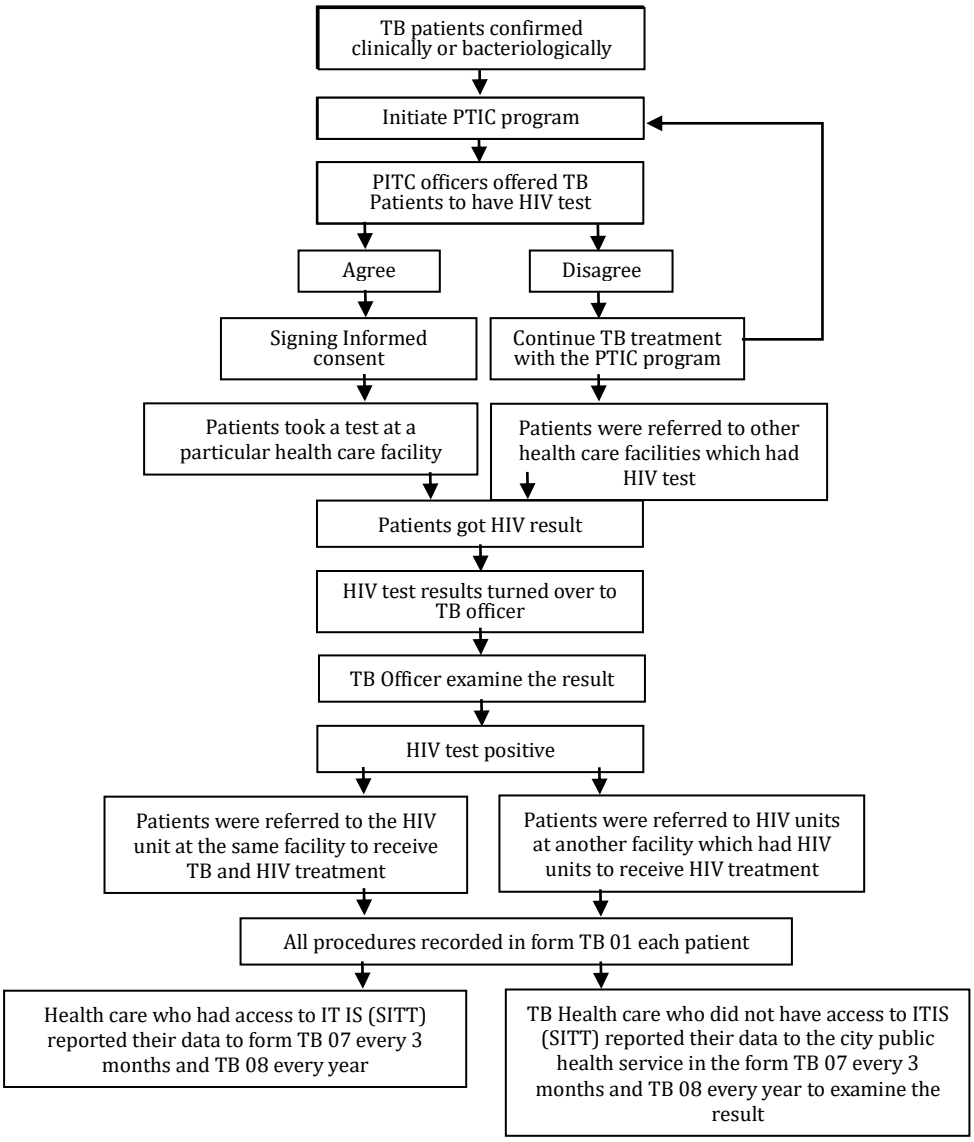

Figure 1. Research Process

Data Collection

The samples collected in our study were secondary data obtained from the Integrated Tuberculosis Information System (SITT) as reported by the sub-directorate of TB Program at the Ministry of Health Republic of Indonesia 2017, which was a cumulative report about healthcare facilities in five high TB-HIV burden cities (Surabaya, Bandar Lampung, Bandung, Palembang, and Makassar). Based on the report, we found detailed information on health care facilities for HIV testing in each city, i.e. Lampung (28 primary health care units, 4 hospitals,12 HIV testing units), Surabaya (63 primary health care units, 23 hospitals, 74 HIV testing units), Makassar (46 primary health care units, 1 BPKM, 12 hospitals, 64 HIV testing units), Palembang (39 primary health care, 55 clinics, 33 hospitals, 15 HIV testing units), and Bandung (73 primary health care, 34 hospitals, 1 BPKM, 49 HIV testing units).

Data Analysis

Cleaning data was performed by the Ministry of Health to ensure data validity. There were sample data, which had been obtained accordingly to the inclusion and exclusion criteria and inappropriate respondents that did not match the study criteria were excluded. Respondents were categorized based on their sex, age, type of diagnosis, type of TB, history of treatment, received PITC and results of HIV test. Data analysis was performed descriptively using IBM SPSS software version 22.0 as well as bivariate and multivariate analysis. A descriptive test was used to describe the frequency of each

group. The chi-square bivariate analysis correlated the HIV status with sex, age, type of TB diagnosis, type of TB and history of treatment; while multivariate analysis using logistic regression analysis was performed to identify probability.

Results

These results sample a total of 16.097 TB patients from five cities with high TB and HIV burdens divided into two criteria. There are three cities conducted by high PITC and two cities did low PITC. In this study, there were no patients with extrapulmonary TB and mostly were new cases. Implementation of PITC shows the detection of TB-HIV patients as much as 6.2-8.6% of total TB patients received PITC. But in total TB patients, a comparison between the high implementation of PITC cities with low implementation of PITC cities in the detection of HIV positive from PITC as follows 4.3:2.6. Both groups showed TB-HIV patients with male sex in productive ages (26-49 years old) are higher than other sex and age. Discovery of increased TB-HIV patients through PITC from Five cities with high TB-HIV burden, we found TB-HIV patients on ARV average of 12.3-38.6, which is still under the national target of TB-HIV programs (100%). For the type of TB diagnosis between clinical diagnosis with bacteriologically confirmed there was no difference significantly. (table.1)(table.2)

Table 1. Characteristics in 3 Cities burden TB/HIV with High PITC Implementation (n = 8.210)

Subject Characteristics	HIV Prevalence (%)		
	Estimation	Std. Error	95% CI
TB Patients	4,3	0,2	3,8 - 4,7
Gender			
Male	3,3	0,2	3,0 - 3,7
Female	1,0	0,1	0,7 - 1,2
Age Groups			
15-25	0,8	0,1	0,6 - 1,0
26-36	2,4	0,2	2,0 - 2,7
37-49	1,1	0,1	0,9 - 1,4
Age group-Gender			
15-25 male	0,6	0,1	0,5 - 0,8
15-25 female	0,2	0	0,1 - 0,3
26-36 male	1,9	0,1	1,6 - 2,2
26-36 female	0,5	0,1	0,4 - 0,7
37-49 male	0,9	0,1	0,7 - 1,1
37-49 female	0,3	0,1	0,2 - 0,4
Type of TB Diagnosis			
Clinically confirmed	1,9	0,2	1,7 - 2,3
Bacteriologically confirmed	2,3	0,2	2,0 - 2,7
Type of TB			
Pulmonary	4,3	0,2	3,8 - 4,7
Extrapulmonary	0	-	-
History of treatment			
Old cases	0,3	0,1	0,2 - 0,4
New cases	4,0	0,2	3,6 - 4,4
PITC			
Yes	68,9	0,5	67,9 - 69,9
HIV Status Among PITC			
Positive	6,2	0,3	5,6 - 6,9
Negative	93,8	0,3	93,1 - 94,4
TB-HIV on ARV Treatment	38,6	2,5	33,8 - 43,8

Table 2. Characteristics in 2 Cities burden TB/HIV with Low PITC Implementation (n = 7.874)

Subject Characteristics	HIV Prevalence (%)		
	Estimation	Std. Error	95% CI
TB Patients	2,6	0,2	2,2 - 2,9
Gender			
Male	1,8	0,2	1,5 - 2,1
Female	0,7	0,1	0,6 - 0,9
Age Groups			
15-25	0,6	0,1	0,4 - 0,7
26-36	0,9	0,1	0,7 – 1,1
37-49	1,1	0,1	0,9 - 1,3
Age group-Gender			
15-25 male	0,4	0,1	0,3 - 0,5
15-25 female	0,2	0	0,1 - 0,2
26-36 male	0,7	0,1	0,5 – 0,9
26-36 female	0,3	0,1	0,2 - 0,4
37-49 male	0,8	0,1	0,6 - 1,0
37-49 female	0,3	0,1	0,2 - 0,4
Type of TB Diagnosis			
Clinically confirmed	1,7	0,1	1,4 - 2,0
Bacteriologically confirmed	0,9	0,1	0,7 – 1,1
Type of TB			
Pulmonary	2,6	0,2	2,2 – 2,9
Extrapulmonary	0	-	-
History of treatment			
Old cases	0,6	0,1	0,4 - 0,8
New cases	2,0	0,2	1,7 – 2,3
PITC			
Yes	29,9	0,5	28,9 – 31,0
HIV Status Among PITC			
Positive	8,6	0,6	7,5 – 9,8
Negative	91,4	0,6	90,2 – 92,5
TB-HIV on ARV Treatment	12,3	2,3	8,9 – 17,2

Bivariate Analysis

Further analysis was carried out to determine the relationship between several factors with the number of HIV cases in three cities with high implementation of PITC compared to two cities with low implementation of PITC. In cities with high PITC implementation, gender and age factors were statistically significant (p = <0.005). Male patients were 2,7 times higher than female patients, and the number of age 26-36 patients was higher than in other age groups. Whereas, other factors such as type of TB diagnosis (clinically or bacteriologically confirmed) and history of treatment (new or old cases) were not statistically significant. However, the number of new cases was higher than old cases in these cities (Table3).

Table 3. Bivariate analysis in Cities with High PITC Implementation (n=5.657)

		HIV Positive		HIV Negative		p-value	OR	95%CI
		n	%	n	%			
Gender	Male	274	8,4	3005	91,6	0,000	2,7	2,10-3,55
	Female	78	3,3	2300	96,7			
Age	15-25	64	4,2	1472	95,8			0,79 - 1,51
	26-36	194	9,5	1853	90,5	0,596	1,09	
	37-49	94	4,5	1980	95,5	0,000	0,45	0,35 - 0,59
Type of TB diagnoses	Clinically confirmed	160	6,2	2421	93,8	0,496	0,99	0,80 - 1,23
	Bacteriologically confirmed	192	6,2	2884	93,8			
History of Treatment	New Cases	328	6,2	4964	93,8	0,419	0,94	0,64 - 1,54
	Old Cases	24	6,6	341	93,4			

Table 4: showed the correlation between several factors and the number of HIV cases in cities with low PITC implementation. In these cities, male patients were 2.25 higher than female patients (p=<0.005) and the number aged 37-49 patients was higher than in other age groups. Most TB patients were diagnosed clinically rather than bacteriologically, but these numbers were not statistically significant (p=0.02). Whereas, the new TB cases were higher than the old cases (p=0.000).

Table 4. Bivariate analysis in Cities with Low PITC Implementation (n= 2.356)

		HIV Positive		HIV Negative		p-value	OR	95%CI
		n	%	n	%			
Gender	Male	145	11.3	1134	88.7	0.000	2.25	1.67-3.14
	Female	58	5.4	1019	94.6			
Age (years)	15-25	44	6,2	668	93,8	0,005	1,73	1,18 - 2,51
	26-36	73	9,1	728	90,9	0,456	1,13	0,82 - 1,57
	37-49	86	10,2	757	89,8			
Type of TB Diagnosis	Clinically confirmed	135	10.1	1204	89.9	0.02	1.57	1.16-2.17
	Bacteriologically confirmed	68	6.7	949	93.3			
History of treatment	New Cases	155	7.1	2029	92.9	0.000	0.20	0.14-0.30
	Old Cases	48	27.9	124	72.1			

Multivariate analysis

Multivariate analysis was performed for variables in the bivariate analysis that had a p-value of < 0.25 which were age and gender in both groups. But in cities with low PITC implementation, the type of TB diagnosed and history of treatment were also analyzed. Table. 5: showed multivariate analysis in cities with high PITC implementation. In three cities with high PITC implementation, male patients with productive age (26-36 age group).

Table 5. Multivariate analysis in Cities with High PITC Implementation (n = 5,657)

	Coefficient	S.E.	Wald	df	p-value	OR	95%CI
Gender	-0,980	0,132	55,102	1	0,000	0,375	0,290-0,486
Age			53,694	2	0,000		
Age 26-36	-0,005	0.167	0,001	1	0,976	0,995	0,718-1,379
Age 37-49	-0,820	0,130	39,472	1	0,000	0,441	0,341-0,569
Constant	3,747	0,150	627,825	1	0,000	42,391	

Table. 6: showed multivariate analysis in cities with low PITC implementation. Two cities with low PITC implementation also indicate a significant number of HIV patients in male patients (Table 6). However, the age 37-49 patients group were higher than other groups in these cities. Furthermore, the type of TB diagnosed and treatment history in cities with low PITC were more significantly correlated with HIV status than in cities with high PITC.

Table 6. Multivariate analysis in Cities with Low PITC Implementation (n = 2.356)

	Coefficient	S.E.	Wald	df	p-value	OR	95%CI
Gender	-0,839	0,165	25,737	1	0,000	0,432	0,312-0,598
Age			6,522	2	0,38		
Age 26-36	0,496	0,199	6,197	1	0,13	1,642	1,111-2,425
Age 37-49	0,085	0,173	0,243	1	0,622	1,089	0,775-1,530
Diagnosis	-0,742	0,165	20,174	1	0,000	0,476	0,344-0,658
History of Treatment	1,826	0,202	81,939	1	0,000	6,209	4,182-9,221
Constant	1,592	0,237	44,980	1	0,000	4,911	

Logistic Regression Analysis

Based on the power of correlation between variables, we found a prediction value using logistic regression analysis, which resulted in the following equation, we found that the probability of male TB patients aged 26-36 years having a risk of positive HIV infection was from two study groups were 94% compared to 78%. The formula can be shown below.

Probability High PITC

y = 3,747 – 0,980 (JK) - 0,005 (Umur1) – 0,820 (Umur 2)
TB Patients, Male, Age 26-36
y = 3,747 – 0,980 (1) - 0,005 (1) – 0,820 (0)
y = 2,762
Probability
p = 1/(1+exp(-y)) = 1/(1+exp(-1,947) = 1/1,06 = 0,877 = 94%

Probability Low PITC

y = 1,592 – 0,839 (JK) + 0,496 (Umur1) + 0,085 (Umur 2)
TB Patients, Male, Age 37-49 years old
y = 1,592 – 0,839 (1) + 0,496 (1) + 0,085 (0)
y = 1,249
Probability
p = 1/(1+exp(-y)) = 1/(1+exp(-1,249) = 1/1,28 = 0,78 = 78%

Discussion

Total TB patients from 5 cities with a high burden of TB and HIV which implemented PITC was 16.097 TB patients. Patients who received PITC as much as 5.657 from high PITC and 2.356 from low PITC cities. TB patients knowing HIV positive status was 6,2% (352 patients) from high PITC and 2,6% (203 patients) from low PITC. Generally, from all TB patients (16.097) through PITC we found that 3,5% had positive HIV status.

We found that PITC can increase the number of detected positive HIV statuses in TB patients. The study suggests that there are still many challenges to ensuring that TB patients become aware of their HIV status. The challenges include the aspect of self-stigmatization, self-trust, unawareness of HIV risk and exposure and low acceptance of HIV status in the community, particularly for children and elderly patients (19,27). Our study also reveals an interesting fact that some patients had initially accepted to undergo HIV testing, but then they did not proceed to have the actual test as they were afraid to know their HIV status;

therefore, the PITC program can be a way to control this challenge by informing patients is essential so that the patients can have further knowledge of HIV infection in TB that may encourage them to willingly undergo HIV testing. It is a portrait of the results between districts with high coverage of PITC compared to low coverage of PITC. It is the implementation of PITC that can increase the early diagnosis of HIV-positive status by as much as 4,3% compared to 2,6%.

Based on preceding the Ministry of Health's May 2017 report, the highest prevalence of TB-HIV is detected at the age limit of 25-49 years (26). That the analysis also affirmed significant peer groups 26-36 years and the male sex is the highest incidence of TB-HIV than others. The age group's strength. Comprises a productive age, more extraordinary frequency of productive age and male sex may be due to the high level of activity in the community, high exposure from the outside world, drug use, and risk of a device from sexual relation (28,29).

This study attained as many as 6.2-8.6% of the prevalence of patients with TB with HIV positive from getting PITC, where the prevalence of HIV (8.6%) results from two cities with low PITC prove has illustrated cities' high burden HIV found from TB patients seeking treatment at the facilities.

Identify the consequences of HIV infection in CD4- and CD8-specific response to heparin-binding haemagglutinin (HBHA) in both LTBI and TB patients where HIV infection reduces the CD4 response to HBHA and likely this may lead to an impairment of TB control (30). In this study from PITC we found as much as 13% of TB-HIV patients were TB relapse. Hence TB patients must PITC that can be HIV tested to detect their HIV status. (15) Therefore, TB-HIV patients have to initiate ARV treatment to increase CD4 (31).

As also seen in this study, we found TB patients receive PITC as much as 8.022 patients, from which 555 (6,9%) are HIV positive but only 161 (29%) receive ARV treatment. 7.975 (49,5%) TB patients were not having PITC, not knowing HIV status and automatically not receiving ARV treatment. Based on previous study and WHO, TB patients with HIV positive is already in stage 3 and 4. (32,33) Therefore PITC should implement to know HIV status and ARV treatment to reduce the mortality rate.

The mortality of TB patients with positive HIV status in four months of TB treatment can increase to 9 times fold if not receiving ARV (34). Another study suggested that 60% of TB-HIV patients who are not receiving initial ARV treatment occurred death within two months of TB treatment (35). Health facilities in five cities from our study with a high TB burden were 409 and had 214 HIV tests. The gap is 48% of the possibility of TB patients can found infected with HIV, they do not get PITC to detect HIV status at healthcare facilities in the high TB/HIV burdens is very challenging as many facilities still cannot perform HIV testing for TB patients who seek treatment at the facilities.

From all these issues, hence the national policy of comprehensive intervention (one-stop service) on combating TB and HIV has included the availability of HIV testing and anti-retroviral treatment at one healthcare facility among our 23 municipalities. The policy should be reinforced by local police from provincial or district level health offices and it is expected to come into realization by 2020.

Since our study has revealed the city with high implementation of PITC has 94% the risk of having HIV infection in male TB patients aged 26-36 years and the city with low implementation of PITC has 78% the risk of having HIV infection in male TB patients aged 37-49 years, the coordination of healthcare service between the TB and HIV units should be reinforced and PITC strategy plays an essential role as it offers early detection of HIV in TB patients.

Limitations and Strength of Study

In this study, we did not find TB patients who received PITC and were referred but not coming back to primary health care, or who accept PITC but refuse to receive an HIV test. More ever we did not have a data mortality rate of TB-HIV patients from each city in this research. In particular, this study found TB patients from PITC in productive age (26-49 years old) and male sex have a probability of 88-94% at risk for HIV infection.

Conclusion

Strengthened implementation of the one-year PITC strategy has proven successful in developing the number of TB patients who know their HIV status. The distribution of productive age and male sex is at high risk of HIV-positive infection so it is significant to focus on early detection of HIV and ARV treatment. First, a district with a low implementation of PITC is the challenge of reducing treatment failure and mortality in the national TB/HIV programs. Second, most regarding TB Officers must implement PITC so they need to be motivated and educated about PITC and most health facilities should follow the national policy of comprehensive intervention of TB-HIV that is necessary to ensure the fulfilment of these test facilities, especially in areas with high TB and HIV burdens, high commitment from the provincial health, city health and health facilities.

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