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Prevalence and Factors That Influence Treatment Compliance of Tuberculosis (Tb) Patients in Andalas District Health Centre Padang

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by the bacterium Mycobacterium tuberculosis. One of the factors which cause increasing incidence of antibiotic resistance is a patient noncompliance. This study aimed to examine the prevalence of pulmonary tuberculosis from 2014-August 2016, to measure the level of compliance and the factors that influence patient compliance in the use of antibiotics. This study was carried out for 3 months using cross sectional method study in Andalas District Health Centre Padang. Assessment of compliance on a prospective basis using Morisky Medication Adherence Scales (MMAS-8) and pill counting method as well as sputum data of respondents'. Data were analyzed using Chi-square analysis. The results showed the number of pulmonary patients have decreased in the sequence year. A total of 22 patients categorized based on their compliance. The MMAS-8 data showed 16 (72.73%) patients comply with their treatment and 6 patients (27.27%) were non-compliant. The pill counting data showed all respondents (100%) complied with their treatment. However, sputum data revealed 2 patients still had positive result until 5th month of treatment. Factor affecting of patient non-compliance were the medication had the bitter taste (100%) and unpleasant side effects (83.3%). Statistical analysis found the factors which have a significant relationship was education level (p = 0.039).

Keywords: *Tuberculosis, Compliance, Andalas District Health Centre*

INTRODUCTION

Tuberculosis (TB) remains a major global health problem, responsible for ill health among millions of people each year. TB ranks as the second leading cause of death from an infectious disease worldwide, after the human immunodeficiency virus (HIV). It was estimated 9.0 million new TB cases in 2013 and 1.5 million TB deaths (1.1 million among HIV-negative people and 0.4 million among HIV-positive people). Most of the estimated number of cases in 2013 occurred in Asia (56%) and the African Region (29%).

Globally, the TB mortality rate (deaths per 100 000 population per year) has fallen by 45% since 1990 and TB incidence rates (new cases per 100 000 population per year) are decreasing in most parts of the world. However, Indonesia is still in the fifth rank country which having the largest number of incident cases in 2013. TB is an infectious disease caused by the bacillus *Mycobacterium tuberculosis*. It typically affects the lungs (pulmonary TB) but can affect other sites as well (extrapulmonary TB) [1,2].

The Central Bureau of Statistic Padang released that TB cases increased from 927 cases in 2013 to 1105 in 2014. The East Padang district has 8.2 km^2 areas with a population of 80272 inhabitants and has a district health centre which is Andalas Health Centre (Dinkes, 2014). Andalas district health centre is outpatient health centre which was the most visited health centre among 15 district health centre in Padang during 2014. Moreover, it was reported to have the highest infected disease cases [3, 4].

The high incidence of TB in the world are caused by various factors such as the lack of treatment compliance, the emergence of resistance, lack of immunity, and the economic crisis [4]. In addition, the patient's habits such as irregular or negligence in taking the medication, improper use of Anti-Treatment of pulmonary TB requires long periods of time and a routinely treatment at least 6-8 months. These are also contributed to bacterial resistance to the drugs and resulting high spending or high cost for its treatment [4-7]. Based on that fact, researcher was interested to identify the factors that influence treatment compliance of TB patients and its prevalence for the past three years.

MATERIAL AND METHODS

Study Setting

The study was carried out at outpatient Department, Andalas District Health Centre (Puskesmas Andalas, Padang).

Study design

It was a prospective type of study with cross sectional methods in which patients receiving treatment for tuberculosis at Respiratory department were studied for assessment of medication adherence. Meanwhile, the retrospective study was done for the prevalence assessment by observing medical record.

Study Period

It was a prospective type of study initiated from May to July 2016.

Study criteria

The subjects were selected on the basis of inclusion & exclusion criteria. The inclusion criteria are patients diagnosed pulmonary TB and undergoing tuberculosis treatment, Patients age above 18 years of both the genders.

Source of data

Patient data collection form, hospital and medical records and laboratory reports of tuberculosis patients.

Informed consent

Informed consent was taken prior to enrollment of patients for study.

Study materials

The following study material was used for the study:

- Morisky's adherence questionnaires (MMAS-8) [5].
- Patient informed consent.
- Patients' medical record

Study procedure

After obtaining the approvals from the Andalas District Health Centre, the study was initiated at outpatient department by the enrollment of the patients based on inclusion and exclusion criteria of the study. The patients were briefed about the study and consent form was given to sign in as the participant for the study. A questionnaire consisted of demographic details such as age, gender, age, gender, education, job, MMAS-8 questions and questions related to the factors influence patient's compliance. All questions have validated with Chronbach $\alpha > 0.6$. Patients asked to fill up the MMAS-8 questionnaire and asked to bring their drug balance for the next appointment.

Statistical Analysis

The statistical analysis was done by using Chi-square test.

RESULTS AND DISCUSSION

RESULTS

Prevalence Data of Patients with Pulmonary TB in January 2014 - August 2016

In 2014, a total of 145 patients diagnosed with pulmonary tuberculosis which consisted of 89 men patients (61.4%) and 56 female patients (38.6%). Among the patients, children 27 patients (18.6%), adults initial (18 – 40 years) were 73 patients (50.3%) and late adulthood (41-64 y) were 45 patients (31.1%).

In 2015, a total of 123 patients diagnosed with pulmonary tuberculosis which consisted of 72 men patients (58.5%) and 51 female patients (41.5%). Among the patients, children numbered 4 patients (3.3%), adults initial (18-40 years.) were 68 patients (55.2%) and late adulthood (41-64 years) were 51 patients (41.5%).

The prevalence data from January to August 2016 showed a total of 86 patients diagnosed with pulmonary tuberculosis which consisted of 51 men patients (59.3%) and 35 female patients (40.7%). Among the patients, children numbered 4 patients (4.7%), adults initial (18 – 40 years) were 42 patients (48.8%) and late adulthood (41 – 64 years) were 40 patients (46.5%) (Tabel 1).

Tabel-1: Prevalence Data of Patients with Pulmonary TB in January 2014 - August 2016

Year	Gender				Age (years)					
	Male		Female		Child		18-40		41 - 64	
	No.	%	No	%	No	%	No	%	No	%
2014	89	61,4	56	38,6	27	18,6	73	50,3	45	31,1
2015	72	58,5	51	41,5	4	3,3	68	55,2	51	41,5
2016	51	59,3	35	40,7	4	4,7	42	48,8	40	46,5

Demographic Data Pulmonary TB Patients

A total of 22 patients were diagnosed as pulmonary tuberculosis. Amongst enrolled Tuberculosis patients, male patients 16 (72.8%) were more compared to female patients 6 (27.8%). The age distribution of enrolled patients was as follows: 11 (50.0%) of tuberculosis patients were between the age group of 18-40 years of age; 11(50.0%) were between the age group of 41 to 64 years of age. Among the participant of the study, 6 (27.3%) of the patients were having formal education in university; 9 (40.9%) had a formal education up to secondary school; 7 (31.8%) were having education in primary school. Most of the patients have an occupation 17 (77.3%) and remaining patients were not working 5 (22.7%) (Table 2).

Table-2: Demographic data of patients (n=22)

Description	No. of Patients	Percentage (%)
Gender		
Male	16	72,7
Female	6	27,3

Age (years)		
18-40	11	50,0
41-64	11	50,0
Education		
Primary school	7	31,8
Secondary school	9	40,9
University	6	27,3
Occupation		
Working	17	77,3
Not working	5	22,7

Assessment of Medication Compliance

Morisky Medication Adherence Scale (MAS) Score

The compliance level of patients by the score MMAS-8 showed high adherence (score 0): 16 (72.73%) patients, moderate adherence (score 1-2): 4 patients (18.18%) and low adherence (score 3-8): 2 (9.09%) patients.

Pill Counting

The evaluation of patient's compliance with this method revealed 22 (100%) patients were compliant to their treatment (balance of antibiotics ≤ 20%).

Factors Affecting Patients Compliance

Out of 22 enrolled pulmonary tuberculosis patients, 6 (100%) patients said that they stopped/miss the medication because of the bitter taste of medication, 5 (83.3%) patients stopped/miss medication because having unpleasant side effect. Other reasons like forgetfulness, forget to take because of busy work and long of waiting time were 1 (16.7%) patients for each reason.

Reason	**No of Patients**	**Percentage (%)**
Forgetfulness	1	16,7%
Unpleasant side effect	5	83,3%
Bitter taste	6	100%
long of waiting time	1	16,7%
forget to take because of busy work	1	16,7%

DISCUSSION

In this study, medication compliance was done by using various demographic factors like age, gender, education, and occupation patient. The results showed the men patient was more the woman. This is similar to research conducted by Reviono [8] that the percentage of male TB patients reached 53.73% of the total, while the percentage

of female TB patients reached 46.27%. The tendency of men more than women because male day-to-day higher, as well as men are the backbone of the family who had to work.

The level of education was related with compliance. According Saepudin [9, 10] a good level of education is a foundation for effectiveness therapy. In order to enhance the therapeutic efficacy, an intensive educational effort to the patient or someone close to them should be conducted. It was found that the level of secondary school education more compliance because these patients are always accompanied by the PMO who supervise the treatment.

CONCLUSION

From the results, can be concluded that majority of pulmonary TB patient had a high compliance to their treatment. Factors affecting patient compliance with pulmonary TB is the level of education (p = 0.039), a drug that patients consume have unpleasant side effects (p = 0.023) and had the bitter taste (p = 0.000).

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