FACTORS AFFECTING COMPLIANCE TO MEDICATION IN LUNG TUBERCULOSIS PATIENTS

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ABSTRACT

Tuberculosis until now is still a health problem in Indonesia and global. The research was observational study with cross sectional design. The objective of this study was to disclose the influence of age, education, knowledge, income, perception susceptible to illness, perception to seriously condition, perception to threatening illness, attitude to take a medicine, expectation to getting well, medical staff support and family support to increase compliance in taking anti tuberculosis drugs. The path analysis showing that there is a direct relation of age, education and family support to increase compliance in taking anti tuberculosis drugs. The result show value of total effect education = 0.700, age = 0.179 and family support = 0.128. This indicating the higher education, age and family support, also make the higher compliance in taking anti tuberculosis drugs.

Keywords : age, education, family support, compliance, Tuberculosis

INTRODUCTION

Tuberculosis (TB) is still a health problem in Indonesia and many other countries in the world. In 1993 WHO has declared TB a "Global Emergency", because the estimated one in three people in the world have been infected with Mycobacterium tuberculosis (germs that cause TB, also called Acid Fast Bacteria = BTA) as evidenced by examination of Mantoux test (Maher, 1998). Approximately 95% of TB sufferers are in developing countries with low socioeconomic and 75% of TB patients occurred in the productive age (MOH RI, 2002). In Southeast Asia allegedly took place more than 3.5 million new TB patients and more than 1.3 million deaths from this disease (Enarson, 2004). Anti TB drugs (ATDs) have been developed since more than 50 years ago, but the WHO in 2004 stated there were 8.8 million new TB patients throughout the world, where 3.9 million is the case of AFB (+) (Raju 2007).

WHO report in 2006 still puts Indonesia as 3rd largest contributor to TB in the world with approximately 539 000 new cases and 150,000 deaths per year. Eradication of TB in Indonesia have been conducted nationally since 1969 through the Tuberculosis Eradication Program (P2TB) by the MOH, and since 1995 more intensified by the use of treatment strategies "DOTS" (directly Observed Treatment Shortcourse) recommended by WHO. But in fact after the program "DOTS" walk more than 10 years, the number of successful treatment has yet to reach the targets set by Dep.Kes which can cure 85% of tuberculosis patients with AFB (+) were treated.

Data East Java Provincial Health Office in 2004 showed an average 15% of treated pulmonary tuberculosis patients in all health centers in East Java, disobedient medication. TB patients who do not comply with treatment at the PHC XX Malang district reached 26% in 2005 and increased to 28.6% in non-adherent 2006.Angka treatment from clinics and hospitals can be seen from the data in pulmonary tuberculosis patients seeking treatment at Dr . Saiful Anwar Malang (1998 and 2001), BP4 Surabaya (2003 and 2004) as shown in Table 1.

The amount of non-compliant treatment rates can lead to high rates of treatment failure that will eventually lead to the more commonly found in pulmonary tuberculosis patients resistant to standard treatments. This would complicate the eradication of TB disease in Indonesia and aggravate lung burden of the government (MOH).

From the results of surveillance reported to have occurred globally-Drug Resistant TB (DR-TB) amounted to 12.6% (TB germs are resistant to one type of ATDs) and 2.2% Multi-Drug Resistant TB (MDR-TB, the TB germs are resistant to more than two types of ATDs). Data from the third report of the WHO / IUATLD Global Project on Anti-Tuberculosis Drug
Resistance Surveillance on 75 areas of 13 countries in 1999-2002, showed MDR-TB ranged from 6.5% - 14% in new cases (primary resistance), and 30% - 60% in cases that were treated (secondary resistance). RS. Friendship Jakarta (WHO year 2003 data), as quoted Soedarsono (2005) shows the number of MDR-TB 4.3% of primary resistance and secondary resistance is 34.44%. Of the various causes of medication non-compliant, it was concluded that the human factor, in this case pulmonary tuberculosis patients is a major cause of disobedience. TB treatment requires awareness and compliance of patients, given the treatment that takes a long time, about 6-9 months.

Table 1. Non-compliant data in pulmonary tuberculosis patients treated at Saiful Anwar Hospital Malang (1998 and 2001) and BP4 Surabaya (2003-2004)

<table>
<thead>
<tr>
<th>Sites of Study</th>
<th>Time of Study</th>
<th>Non-compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saiful Anwar Hospital Malang</td>
<td>1998</td>
<td>53.7%</td>
</tr>
<tr>
<td>Saiful Anwar Hospital Malang</td>
<td>2001</td>
<td>28.37%</td>
</tr>
<tr>
<td>BP4 Surabaya</td>
<td>2003</td>
<td>27%</td>
</tr>
<tr>
<td>BP4 Surabaya</td>
<td>January – June 2004</td>
<td>34%</td>
</tr>
</tbody>
</table>

Some things can be the cause of non-compliant TB patient take medication (defaulter), among others: 1). Feeling fed up of having to follow a long treatment; 2). Was already cured or 3). Felt not heal even when treated (Yew & Chau, 1995; Cole & Talenti, 1995; Crofton, 1999). According to Weiss and Lonquist (1996), the complexity of drug regimes affect treatment compliance. The more complicated the treatment (number of types of drugs, several times a day, a long-term) is more difficult to comply with the drug than a simple (one each day, short term).

Various theories about the compliance behavior raised some authors, among others: 1) Compliance with medication is influenced by patient behavior; 2) The best way is to change behavior by providing information and discussion and participation from the patient (Sawono, 1993; Notoadmodjo, 1997); 3) To be more submissive behavior of patients is needed to strengthen the driving force to promote persuasion and providing information (theory of Force Field Analysis of Lewis).

It will discuss are the factors that influence adherence to drink ATDs and how the relationship between these factors affecting treatment compliance in patients with pulmonary tuberculosis. This study aims to analyze the model of relationship between variables that influence treatment compliance in pulmonary tuberculosis patients.

MATERIALS AND METHODS

This study is an observational study with cross sectional design. Research conducted at the Institute for Medicine and Pulmonary Disease Eradication (BP4) / RS Karangtembok Surabaya. Population is all new pulmonary tuberculosis patients seeking treatment during the study period. The sample size used in this study amounted to 134 patients, drawn by simple random. Variables examined were age, education, income, knowledge, symptoms of disease, patient perceptions of susceptibility to TB disease, patient perception about the severity of TB disease who suffered, perception of threats against her illness, patient attitude towards treatment compliance, patient expectations for recovery, support health workers, family support and patient compliance with medication. Data were collected by interview using a questionnaire and observation of the remaining amount of ATDs patients. The data were analyzed by path analysis.

RESULTS

The average age of patients with pulmonary TB in this study 37.48 ± 13.30 years. The youngest patient was 15 years old and the oldest 70 years. From the data seen most of patients with pulmonary TB in this study are aged between 21-30 years (32.1%), followed by age 41-50 years (22.4%) and 31-40 years (20.1%). Found 3.7% aged 61-70 years. Sex of pulmonary TB patients in this study, 76 male persons (56.7%) and women 60 men (43.3%). There were 59.0% of study participants had secondary education (junior and senior high school). Work pulmonary tuberculosis patients in this study were varied. There were 46.2% of study participants did not have a job. This occurs because the group does not work, including the mothers of Household, children still attending school or not yet married who do not have their own jobs. The average family income of pulmonary tuberculosis patients in this study is Rp. ±
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711 111 USD. 270 161. Lowest income Rp. And the highest was 350 000 USD. 2,000,000. Knowledge of health and TB disease, scores of knowledge about health and TB LUNG average score of 14.08 ± 3.70 with the lowest and highest 5 24.

A total of 97.0% patients expressed a long cough is the main symptom of pulmonary tuberculosis, shortness of breath are symptoms of the two (50.7%) and coughing up blood is a symptom of the 3rd (38.1%). As many as 27.0% patients have a good perception that they are susceptible to TB disease, 76.9% have a perception. Weight of their illness, 62.7% who felt that they were threatening disease, 63.4% had cough attitudes to treatment and 38.1% have a hope of recovery. As many as 93.3% of patients declared regularly encouraged to seek treatment from health workers, 81.3% reported receiving a friendly service from health workers and 79.9% said they received information about the disease from health workers. A proportion of 22.4% of patients declared family members know to avoid patients after suffering from pulmonary tuberculosis. There were 62.7% of patients stating a family member did not provide transport assistance to the sufferers, or bring patients to control health-care facilities, while there are 50.7% of patients expressed concern over the lack of treatment progress of patients from family members.

A proportion of 69.4% of patients taking drugs every day, 30.6% of patients taking the medicine does not declare every day, while 72.7% of patients taking the medicine once declared, 26.9% reported not taking the medicine altogether. In the form of scores, medication adherence in patients with an average score of 4.55 ± 1.37 (the lower one, and the highest score 6). When translated more detailed patient compliance in taking medicine according to the observations fit with the remaining amount of drug that should, according to the PMO taking medicine, taking medicine according to the patient herself, and how to take medication, medication adherence results obtained during the 8 weeks revealed increased adherence to drink ATDs (viewed from the rest of the drug as it should be) of 64.9% of all patients in the first week of treatment to 79.9% at week eight.

The result of path analysis showed all the factors that produced significant path coefficient. Variables that directly influence medication adherence were age, education and family support. The higher education, the more obedient patient taking the medicine, the older the age the more obedient medication and family support increasingly higher patient medication compliance. Table 2 shows the total effect of each variable of medication adherence. Of the 16 can be seen that the variables have the greatest effect on adherence to medication is patient education, followed by age and family support.

DISCUSSION

Most sufferers are aged between 21-50 years, this according to various studies that concluded that tuberculosis disease is mainly found in the productive age (Crofton, 1999; Reichman 2000; Enarson, 2004). Most sex all the samples were male, the highest level of education is a sample of secondary education (junior and senior high school). Percentage of population education is like a picture of the city of Surabaya, where most of the educated middle-Surabaya resident (junior and senior high school) (Population of Surabaya, 2004). According Notoatmodjo (1997), Tjokroningrat (1998) and Hurloc (1998), quoted by Ma'mun (2002) that knowledge can be influenced by several factors including: 1) Age; 2) The level of education; 3) Work and 4). Sources of information. According to the theory of a Health Belief Model (HBM, Strecher, 1997), perception vulnerable to disease and perceptions of illness severity is influenced by several factors: age, knowledge, education, socio-economic, cultural, ethnic and faith. Perception of the perceived threat of disease is influenced by age, education, socio-economic, knowledge, perception vulnerable to TB, the perception of disease severity and symptoms of TB disease suffered by the patient is perceived (HBM theory).

Table 2. Total effects of independent variables on medication adherence before intervention

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0.179</td>
</tr>
<tr>
<td>Education</td>
<td>0.700</td>
</tr>
<tr>
<td>Income</td>
<td>0.000</td>
</tr>
<tr>
<td>Knowledge</td>
<td>0.000</td>
</tr>
<tr>
<td>Perception of susceptibility</td>
<td>0.000</td>
</tr>
<tr>
<td>Perception of severity</td>
<td>0.000</td>
</tr>
<tr>
<td>Perception of threat</td>
<td>0.000</td>
</tr>
<tr>
<td>Knowledge on symptoms</td>
<td>0.000</td>
</tr>
<tr>
<td>Attitude on compliance</td>
<td>0.000</td>
</tr>
<tr>
<td>Healing expectation</td>
<td>0.000</td>
</tr>
<tr>
<td>Caregivers support</td>
<td>0.000</td>
</tr>
<tr>
<td>Family support</td>
<td>0.128</td>
</tr>
</tbody>
</table>

Azwar (2000) says: attitude formation is influenced by personal experience, culture, others are considered important, religious institutions and emotional factors. Sackett and Snow (1979) as quoted by Abraham (1997) states an average of 50% degree of disobedience take medicine because of the length of time required for
Depending on the availability of resources and environment, researchers require an innovative strategy that is different, as disobedience is a multi-dimensional problem, which TB patients who became study participants. Medical observation by officers when conducting home visits to patients supported by an adequate level of knowledge, professional health workers and family support through the participation of PMO. Influenced by the level of disobedience of a lack of knowledge, experience and at least a low socio-economic status (wordpress.com http://dikia, 28/03/2008).

Family support is very influential in improving medication adherence and cure of disease a person, it is stated by some researchers, among others: 1). Of the psychiatrists in the survey in Barcelona, 85% said that lack of adherence to medication adalan schizophrenia cause of relapse of disease and family support is very influential in enhancing medication adherence (Antara.co.id, 02/09/2008); 2). The relationship between family support through social interaction, providing transportation and financial effort is very significant in improving the compliance of the elderly to provide their needs (Rahayu, 2001); 3). Support the family is all forms of behavior and positive attitude to the family provided one of the family. Elvi Syahrina (2007) found no relationship to the level of family support for elderly depression, the better the lower the family support the severity of depression; 4). The relationship of social support for families with drinking ATDs adherence to TB patients at health centers Wonogiri Pracimantoro Central Java.

Treatment compliance means dutifully followed the instructions on drug use, and more than that implement and maintain appropriate rules of therapy behavior. In this study, drinking behavior ATDs dutifully assessed from: 1). rest of ATDs in patients with the corresponding amount should be; 2). PMO to supervise the patient states that patients taking drugs every day, and 3). The patient stated that he drank every day of ATDs. Third data is recorded in the data collection instrument in the form of a weekly record sheets and observation by officers when conducting home visits to TB patients who became study participants. Medical disobedience is a multi-dimensional problems, which require an innovative strategy that is different, depending on availability of resources and environment of cooperation and support of health workers, community and family members.

From the results obtained path analysis model of dependence between variables affecting medication adherence in patients with pulmonary TB shows all path coefficients yielded significant, but variables that directly influence medication adherence were age, education and family support. The higher the education the more obedient to drink ATDs, the older the more obedient to drink ATDs, the better support the more obedient to drink ATDs family. Of the three variables, variables that have the greatest effect on the compliance of patients taking ATDs is education, followed by age, and family support (Table 2).

The results of this study differ from previous results of Weiss and Lonquist (1996) and Earnest and Sbarbaro (1996) stating age, education, knowledge about the illness and the severity of the patient and the seriousness of his illness did not affect treatment compliance. In this study, age and education directly affect adherence, whereas patient knowledge about TB disease and the severity of the illness does not directly affect the compliance of drinking ATDs. This result can be different from the research Weiss and Lonquist (1996) and Earnest and Sbarbaro (1996) stating that the support of health workers affect compliance, but the same in terms of gender did not affect treatment compliance. The results are consistent with Abraham (1997) who find: treatment compliance is influenced by education, but differ in terms of severity of illness and whether life-threatening illnesses that affect drinking compliance with medication. The similarity of this study with the results of research Ley (1992) which states, treatment compliance is not influenced by economic conditions, and severity of disease.

**CONCLUSION**

The results showed compliance with drinking ATDs pulmonary tuberculosis patients can be influenced by: age, education, knowledge, income, vulnerable to disease perception, perception of disease severity, perceived threat of disease, knowledge of disease symptoms, attitude towards treatment compliance, the hope for recovery, support for health workers , and family support. but that most directly impact were: age, education and family support. To be successful TB eradication programs can achieve multi-dimensional approach is required. In addition to TB patients taking ATDs always obey the absolute need for support from family.
REFERENCES


