Determinants of Patient Compliance on the Treatment of Drug-Resistant Tuberculosis in TBC-RO treatment hospital in Aceh, Indonesia

Khairuman[1], Ida1[1], Asfriyati[2]
[1]Department of Administration and Health Policy, Universitas Sumatera Utara, [2]Department of Health Community/Epidemiology, Universitas Sumatera Utara
Email: khairum4n@gmail.com

Abstract: Drug-resistant tuberculosis continues to increase so that at present Tuberculosis is still a global health problem. In 2017 there were 558,000 incidences of drug-resistant cases from the 14 million prevalence of TB cases in the world. Patient compliance in the treatment of drug-resistant tuberculosis will increase the patient's cure rate and prevent the spread of MDR TB bacteria in the community. The purpose of this study was to determine the patient's determinants of adherence in undergoing a period of TB-RO treatment in TBC-RO treatment hospitals in Aceh. This was a cross-sectional study was conducted at Poli TB MDR RSUD dr.Zainoel Abidin Banda Aceh, RSUD Tgk.Chiek Di Tiro Pidie and RSUD Cut Mutia North Aceh, from July 11 to Sept 15, 2019. A sample of 70 TB MDR patients was selected by saturated sampling. The dependent variable was the patient compliance. The independent variables were patient motivation, side effects of OAT, family support and health services. The data were collected using questionnaires and analyzed by multiple logistic regression. The patient compliance of the treatment drug resistant was influenced by patient motivation (OR = 26,250; p = 0.000) and side effects of OAT (OR= 29,750; p= 0.013). The patient compliance was assosiated with family support (p= 0,010) and health services (p=0,002). The patient compliance of the treatment drug-resistant was influenced by patient motivation and side effects of OAT.

Keywords: compliance, TBC-RO, motivation, side effects of OAT, family support, health services

Introduction

Determinants of Patient Compliance on the Treatment of Drug-Resistant Tuberculosis in TBC-RO Mycobacterium Tuberculosis is a type of bacteria that causes Tuberculosis, one of the diseases currently which is still a global burden. Incidence and death caused by TB continue to increase in the world, coupled with an increase in cases of TB People with HIV / AIDS (TB-ODHA), Child TB, Diabetes Mellitus TB and TB disease caused by medication management errors that cause the emergence of resistant Tuberculosis bacteria drug (TBC-RO).

TBC-RO is a Tuberculosis disease that does not respond to at least two types of Anti Tuberculosis (OAT) drugs that are quite patent simultaneously, namely Isoniazid (INH) and Rifampicin (R). Treatment efforts for TBC-RO are 50 times more difficult and 100 times more expensive than the treatment of Drug Sensitive Tuberculosis (TBC-SO) so it is very burdening for developing countries.

In 2017, new TB cases are predicted to be around 10 million cases or 100 / 100,000 population, 14 million prevalence of TB cases and 558,000 incidents of drug-resistant cases occurring in the world. Cases occur in most of Southeast Asia (26%), the Western Pacific (25%), Africa (14%), America (13%), Europe (12%) and the Eastern Mediterranean (9%). 1.6 million deaths due to tuberculosis have occurred and added to 300,000 or 0.3 million deaths in TB-HIV sufferers (WHO,2018).

There are around 558,000 TBC-RO cases in 27 countries with the most TBC-RO cases in the world.

In 2017 Indonesia occupied third world countries out of 8 countries with 60% of tuberculosis incidents namely India, China, Indonesia, Philippines, Pakistan, Nigeria, Bangladesh, and South Africa. The incidence of tuberculosis cases found in 2017 amounted to 842,000 people /cases where there was an increase compared to the events in 2015 which were 330,729 cases and Indonesia ranked 8th in TB cases in the world.

Aceh is one of the 12 provinces in the case of TBC incidents from 34 other provinces in Indonesia. New cases of TBC patients with positive Acid Resistant BTA (BTA +) were found in 3,410 cases in 2016. This number has decreased compared to 2015 of 4,023 cases. The Aceh Province Case Notification Rate (CNR) in 2016 which was 113 / 100,000 population, was seen to be lower compared to 2015 which was 119 / 100,000 population (Aceh Health Office, 2017). The number of TB incidents in Aceh in 2017 was 23,763 cases and the number of TBC-RO incidents was 770 cases (Kemenkes, 2018).

Suspected discoveries of TBC-RO cases in Aceh Province from 2014 to 2018 continued to increase, respectively 142 cases, 172 cases, 309 cases, 1,094 cases and in 2018 there were 2,490 cases. From 2014 to 2018, there were 175 confirmed TBC-RO patients recorded who was undergoing treatment at TBC-RO treatment facilities spread across several districts/cities in Aceh.

WHO says adherence is a person's behavior in conducting treatment, recommended food consumption patterns and followed, dynamics of a better lifestyle following recommendations from health workers. Patients who adhere to TBC-RO treatment are patients whose treatment period is completed in a directed and complete manner, without interruption in the middle of a 12-month treatment period (short term therapy) or a long term therapy for 22 months. Adherence to treatment greatly determines the cure rate of patients during the treatment of TBC-RO.

Muna & Soleha said that optimal family social support will be the motivation that causes patients to adhere to TB treatment. Niven also said that the motivation possessed by patients is highly influenced by health services in the quality of interaction and understanding of instructions from health workers.

Muliawan said that patient adherence is influenced by several factors including health perspectives, history of treatment, history of previous therapies, environmental factors (friends and family), the presence or absence of side effects from medications, the patient's financial condition, and the quality of the level of interaction with health professionals.

Bosworth stated the factors that impact patient compliance is undergoing treatment are patient factors, health services, clinical personnel, and environmental factors.

Report data in Aceh found that cases of patients who had dropped out of TB treatment were quite high at an average of 6% per year, even though they had not yet reached the threshold of the number of cases of patients dropping out of treatment (LFU) from the Indonesian Ministry of Health by 10%. From 2015 to 2018 there were 165 patients taking treatment, 29 out of them (18%).

This study aims to analyze the determinants of patient compliance in the treatment of TBC-RO in TBC-RO treatment service hospitals in Aceh, Indonesia.

Research Methods

Study Design

The type of research in this analytical study was a cross-sectional design.

Population and Sample

The study was conducted at three hospital ware dr. Zainoel Abidin Hospital, Tgk.Chiek Di Tiro Hospital and Cut Mutia Hospital, Aceh from July 11 to Sept 15, 2019. The study population was TBC-RO patients who were recorded and treatment at there Hospital. A total of 70 TBC-RO patients was selected by saturated sampling from the population.

Study Variables

The dependent variable was the patient compliance. The independent variables were patient motivation, side effects of OAT, family support and health services.

Data Analysis

Univariate analysis was conducted to determine the average, standard deviation, minimum, and maximum scores. Bivariate analysis using the chi-square test aimed at independent variables and the dependent variable of the study. Multivariate analysis using multiple logistic regression.

Data Collection

The data were collected by questionnaire.

Results and Discussion

Analisis Univariat

Characteristics of the study subjects including gender, age, education, transportation, marital status, income, and regimen treatment guide were described in Table 1

Table 1. Characteristic of the study subjects

Characteristics	n	%
Age		
<19 years old	1	1
20-44 years old	29	41
45-60 years old	27	39
>60 years old	13	19
Gender		
Male	52	74
Female	18	26
Education		
Pre primary school	3	4
Primary school	8	11
Junior high school	19	27
Senior high school	30	43
Diploma	2	3
Graduate	8	11
Post graduate	0	0
Transportation		
Motorcycle	22	31
Bicycle	1	1
Private car	3	4
Public transportation	44	63
Marital status		

Married	61	87
Single	5	7
Widow/widower	4	6
Income		
According to provincial minimum fee (Rp. 2.916.810/month)	25	36
Below the provincial minimum fee (<Rp.2.916.810/month)	45	64
Regimen Treatment guide of TBC-RO		
Individualized treatment guide (20-24 month)	29	41
Short-term treatment guide (9-11 month)	41	59
Motivation of Treatment		
Good Motivation	59	84
Lack of motivation	11	16
Side effect of OAT		
Side effects affect the treatment	58	83
Side effects NOT affect the treatment	12	17
Family Support		
Good Support	62	89
Lack of support	8	11
Health Services		
Good health services	65	93
Lack of health services	5	7
Compliance of treatment		
Adherent of treatment	48	69
NOT Adherent of treatment	22	31

Bivariate Analysis

Bivariate analysis was conducted to determine the relationship of independent variables with the dependent variable, namely motivation, side effects of OAT, family support, and health services.

Table 2. The Results of Bivariate Analysis by Using Chi Square

Variable	Compliance of Treatment				N	%	p
	Adherent	%	Not Adherent	%			
Motivation							
Good Motivation	45	84,9	8	15,1	53	100	0,001
Lack of motivation	3	17.6	14	82,4	17	100	
Side effects of OAT							
Side effects affect the treatment	36	62,1	22	37,9	58	100	0,013
Side effects NOT affect the treatment	12	100	0	0	12	100	
Family Support							
Good Support	46	74,2	16	25,8	62	100	0,010
Lack of support	2	25	6	75	8	100	
Health Services							
Good health services	48	73,8	17	26,2	65	100	0,002
Lack of health services	0	0	5	100	5	100	

Multivariate Analysis

Table 3. The Results of Multivariate Logistic Regression Analysis

Variable	OR	p
Motivation	26,250	0,001
Side of Effects OAT	29,750	0,013

Discussions

Patient compliance in treatment in this study was the level of patient compliance in completing the TBC-RO treatment period without treatment interruption for 3 days to 2 months based on the TBC-RO Treatment Form record (F.TB.01). The results showed 48 (69%) patients were adherent to treatment and 22 (31%) patients were not adherent in the treatment of drug-resistant tuberculosis in 3 TBC-RO treatment hospital services.

Based on the results of the study, motivation has a significant effect on patient compliance in TBC-RO treatment with a B value of 3.393, sig. = 0.000, Exp (β) = 26.250 and p = 0.001. This shows that if the value of motivation can be improved, the patient's compliance in the treatment of TBC-RO will also increase, patient motivation consists of the internal and external motivation of patients who are taking TBC-RO treatment. The patient's highest motivation in treatment is the patient's desire to recover and to be free of tuberculosis. This is in line with the results of previous studies by Ratna Sundari et al (2017) which states that factors that influence the level of patient compliance during pulmonary TB treatment at 5 PKM in Pekanbaru City include attitudes and motivation of patients towards treatment for healing.

The results of this study found that of 70 respondents the majority of patients had good motivation in undergoing the treatment of TBC-RO in the amount of 53 people and 17 people had low motivation for compliance with TBC-RO treatment.

Furthermore, the variable side effects of Anti Tuberculosis Drug (OAT) has a significant influence on patient compliance in the treatment of TBC-RO with a B value of 20.846, sig. = 0.003, and Exp value (β) = 29.750 and p-value = 0.013. This shows that if the influence of the side effects of higher OAT will affect the level of compliance of patients who are on TBC-RO treatment. Side effects of OAT cannot be intervened during the treatment period, because OAT is intended for TBC-RO patients is a type of antibiotic that is high in dosage and its level of toxicity is to kill bacteria of drug-resistant tuberculosis.

Made Ratna's (2012) study states that there is an influence between the Side Effects of Anti-Tuberculosis Drugs on compliance with pulmonary tuberculosis treatment in BBKPM Surakarta with a value of p = 0.004 meaning that it is quite significantly related to medication adherence. Furthermore, according to Muhammad Ulfi (2011), the results of his research showed that the side effects of OAT had a significant effect on the compliance of TB treatment in the hospital of dr.Soebandi Jember with a value of p = 0,000. By the results of the study on 70 respondents where the effect of side effects of OAT was smaller felt by patients with a 29.8 times chance for patients on adherence in undergoing TBC-RO treatment compared with patients who had a greater effect of side effects of OAT.

From the results of data analysis, there were 58 people of respondents said the side effects of OAT affected the treatment they were undergoing, while 12 people agreed that the side effects of OAT did not affect their treatment. Based on the results of interviews with patients the types of side effects of OAT most often felt by patients include: dizziness, nausea and sometimes vomiting, dizzy eyes, dry skin even dark after taking medication, hearing loss, impaired liver function, impaired kidney function, schizophrenia mental disorders even occur,

hallucinations occur, itchy skin, body weakness and decreased appetite, abdominal pain, joint pain, tingling to the burning sensation in the legs, and reddish color in urine.

Family support variables have a significant relationship to patient compliance in TBC-RO treatment with a value of p = 0.010, but this variable does not affect patient compliance in undergoing TBC-RO treatment period based on multivariate tests with multiple logistic regression test methods. From the research data, it was found from 62 patients with good family support that there were 46 people (74,2%) adherent in treatment and 16 (25,8%) people were not adherent to treatment. This is following the Septia study (2012). Family support is quite related to the level of pulmonary TB patients who adhere to treatment at Arifin Achmad Regional Hospital. people (65.52%).

Furthermore, health service variables have a significant relationship to patient compliance in TBC-RO treatment with a p=0.002. The results of research in three hospitals referral to TBC-RO treatment services showed good service (93%) according to respondents. 65 respondents who received good service there were 48 people (100%) compliant with treatment. Furthermore, 5 people who gave poor service feedback, there were 5 people (100%) of respondents who did not comply with treatment. The multivariate test results of health service variables did not significantly influence TBC-RO treatment compliance in TBC-RO treatment referral services in Aceh.

This finding is by Yenni Kusmatuti's study (2018) which states that 50 patients were interviewed at Dr.Sutomo Surabaya Hospital and obtained the results of the correlation test which states that there is no significant relationship between health care and medication adherence.

References

Bostworth, Hayden.(2010). Improving Patient Treatment Adherence. USA : Springer New York Dordrecht Heidelberg.

Kementerian Kesehatan. (2013). Petunjuk Teknis Manajemen Terpadu Pengendalian Tuberkulosis resistan Obat, Jakarta : Dirjen Pengendalian Penyakit dan Penyehatan Lingkungan Kemenkes RI.

Kementerian Kesehatan. (2016). Peraturan Menteri Kesehatan No. 67 Tahun 2016 tentang Pengendalian Tuberkulosis, Jakarta : Kemenkes RI.

Made Ratna Dewi Setiawan. (2012). Pengaruh Efek Samping Obat Anti Tuberkulosis Terhadap Kepatuhan Berobat Tuberkulosis Paru Di BBKPM Surakarta: Fakultas Kedokteran Universitas Sebelas Maret, diakses pada tanggal 12 September 2019 di https://digilib.uns.ac.id/dokumen/detail/29161/Pengaruh-Efek-Samping-Obat-Anti-Tuberkulosis-Terhadap-Kepatuhan-Berobat-Tuberkulosis-Paru-Di-Bbkpm-Surakarta.

Muliawan, B.T. (2008). Pelayanan Konseling akan Meningkatkan Kepatuhan Pasien Pada Terapi Obat. Diakses Januari 2018; http://www.binfar.depkes.go.id/def_menu.php

Muhammad Ulfi. (2011). Faktor-Faktor Yang Berpengaruh Terhadap Kepatuhan Pasien Pengobatan Tb-Paru Di Rumah Sakit Dr. Soebandi Jember. Diakses pada tanggal 9 Agustus 2019 di https://id.123dok.com/document/4yrko6jz-faktor-faktor-yang-berpengaruh-terhadap-kepatuhan-pasien-pengobatan-tb-paru-di-rumah-sakit-dr-soebandi-jember-1.html

Muna, Latifatul., Soleha, Umdatus. (2014). Motivasi Dan Dukungan Sosial Keluarga Mempengaruhi Kepatuhan Berobat Pada Pasien Tb Paru Di Poli Paru BP4 Pamekasan. Fakultas Keperawatan dan Kebidanan UNUSA. Diakses pada tanggal 30 Januari 2018: http://journal.unusa.ac.id/index.php/jhs/article/view/124/112

Ratna Sundari, Adelia., Lasmaria Simbolon, Rohani., dan Fauzia, Dina. (2017). Faktor-Faktor yang Mempengaruhi Tingkat Kepatuhan Pasien terhadap Pengobatan TB Paru di lima

Puskesmas di Kabupaten Pakan Baru, Pekan Baru : JOM FK Vol.4 No.2 Oktober 2017.

Septia, Asra., Siti Rahmalia.,Febriana Septian. (2012). Hubungan Dukungan Keluarga dengan Kepatuhan Minum Obat pada Penderita TB Paru di RSUD Arifin Ahmad, Riau : Universitas Riau Prodi Ilmu Keperawatan.