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The Analysis of Complications of Tuberculosis Sufferers Due to History of Drug Breakup in The Area of Puskesmas Puri Mojokerto Regency



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Abstract

Pulmonary TB disease is one of the priorities of eradication of infectious diseases. Early-stage drug breakup occurs if the patient does not take medication 2 months in a row or more before the treatment period is complete. Drug breakups result in patients being resistant to OAT (Anti-Tuberculosis Drugs) and can lead to complications. This study aimed to analyze the occurrence of complications of tuberculosis sufferers due to a history of drug breakup. The design in this study was Correlation Analytics with Retrospective approach methods. The population in this study was all TB sufferers who had a history of drug breakups and complications. The sampling technique in this study was Non-Probability Sampling with purposive sampling type. The sample was 30 respondents. The instruments were interview for the history of drug breakup and patient treatment cards and observation and status of patient as the instruments of complications. Spearman Rho test results showed that value = 0.055 or more than α (0.05) which meant there was no correlation between the history of drug breakup with complications of tuberculosis. Based on this study, it could be concluded that the complications of tuberculosis that occur not only because of drug breakup factors but can be due to the spread of increasingly widespread germ infections, the immune system of the sufferers who are lacking, tuberculosis concomitant diseases, nutritional status of tuberculosis sufferers, and also knowledge from TB sufferers who lack the awareness to maintain health.

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INTRODUCTION

Tuberculosis is an infectious disease caused by the germ *Mycobacterium tuberculosis* (Indah, 2018). Currently, pulmonary TB disease is one of the priorities of eradication of infectious diseases. Complete treatment of tuberculosis is carried out for 6 months. During treatment, there are still people with tuberculosis who experience drug breakups or do not routinely take medication. Drug breakup is a sufferer who does not take the drug 2 months in a row or more before the treatment period is completed (Khamidah, 2016). Drug breakup resulted in patients resistance to OAT (Anti-Tuberculosis Drugs) that can cause complications of early tuberculosis such as pleural effusion, pleuritis, empyema and further such as severe Hemoptysis, Collapse of the lobes due to bronchial retraction, Bronchitis (dilation of local bronchi), fibrosis (formation of connective tissue in the recovery process or reakit) in the lungs, Pneumotorak (the presence of air in the pleural cavity) spontaneously, Spread of infection to other organs such as the brain, bones, joints, kidneys and so on, Cardio Pulmonary Insufficiency (Ward, J., Leach, 2010).

Based on health profile data in east Java with the number of cases discovery 146 per 100,000 inhabitants with the number two in Indonesia after north Sumatra, the number of prevalence data in East Java complete treatment is still 9.48% of the number of cases discovered in 2018. Based on Regional Health Study Data of East Java Province ranked fifth in Indonesia from 2013-2018 (Risksdas, 2018). Based on the results of a survey from the Mojokerto District Health Office The results of health profile data (2017) the discovery of positive BTA cases in Mojokerto city as many as 107.46 cases per 100,000 residents. In 2018, new patients with pulmonary TB were found, for patients undergoing complete treatment as much as 81.92%, for patients who broke up treatment as much as 3.92%, while patients who died 14.16%. The survey results from UPT Puskesmas Gayaman obtained data from patients with Pulmonary Tuberculosis BTA (+) Year 2019 115 patients.

Pulmonary tuberculosis is currently transmitted quickly and easily is still a public health problem (WHO, 2019). Factors related to drug breakups are demographic characteristics, socioeconomic, respondent knowledge, service access (Octavianus, Suhartono, 2015). The duration of treatment OAT (Anti-Tuberculosis Drugs) consist-

ing of Isoniazid, Rifampicin, Pyrazinamide, Streptomycin will treat patients with severed drugs because treatment should be done 6 months (Amin, 2015). Drug breakup will result in patient's resistance to drugs, the spread of tuberculosis infection is increasingly widespread that will form TB billion because the invasion of TB Ghon spread of infection occurs to other organs (Kimberly, 2011).

METHODS

The study design used in this study was Analyst correlation with the retrospective approach method. The instruments were, the first instrument used for tuberculosis complications using the patient status observation sheet, the second instrument used a history of drug breakup using Interview and tuberculosis treatment card. The data retrieval was conducted door to door in September 2019 – January 2020. Before taking the data the researcher explained the purpose of the study and gave a letter of approval to be a respondent and keep the identity of the respondent confidential.

General data

Table 1. General Data by Gender, Education, Age and Occupation

| Characteristic | Criterion | F | % |
|----------------|--------------------|-----------|------------|
| Gender | Man | 17 | 56,7 |
| | women | 13 | 43,3 |
| education | primary school | 4 | 13,3 |
| | junior high school | 15 | 50,0 |
| | senior high school | 6 | 20,0 |
| | university | 5 | 16,7 |
| Age | 18-30 years | 5 | 16,7 |
| | 31-49 years | 12 | 40,0 |
| | 50-55 years | 13 | 43,3 |
| work | Not working | 3 | 10,0 |
| | loborer | 5 | 16,7 |
| | official private | 14 | 46,7 |
| | farmer | 8 | 26,7 |
| Total | | 30 | 100 |

Characteristics of Respondents by Gender Most of the respondents were male, numbering 17 respondents. Education level most of the respondents are junior high school educated as many as 15 respondents 50%, Age Respondents mostly 50-55

years 13 respondents or 43.3% most of the respondents worked as private employees as many as 14 respondents (46.7%).

Special Data

Table 2. Characteristics of Pulmonary Tuberculosis Complications and History of Drug Breakup

| Characteristic | Criterion | F | % |
|--------------------------|-----------|----|------|
| Complications | early | 14 | 46,7 |
| | Advanced | 16 | 53,3 |
| History of Drug Breakups | Intensive | 12 | 40,0 |
| | Advanced | 18 | 60,0 |
| | Total | 30 | 100 |

Based on Table 2. it is known that most of the respondents experienced advanced complications of tuberculosis as many as 16 respondents (53.3%), while respondents who experienced early complications were as many as 14 respondents (46.7%). History of drug breakup at the intensive stage 12 respondents (40%) and an advanced stage 18 respondents (60%).

Based on Table 3, it is known that respondents who have a history of breaking up intensive drugs with early complications and advanced complications 6 respondents (50%), While respondents who have a history of advanced drug breakups are mostly with advanced complications as many as 10 respondents (55.6%). Spearman Rho test results

Table 3. Cross Tabulation complications of tuberculosis and history of drug breakup

| History of Drug Breakups | Complication TBC | | | | Total | |
|--------------------------|------------------|------|----------|------|-------|-----|
| | Early | | Advanced | | F | % |
| | F | % | F | % | | |
| Intensive | 6 | 50,0 | 6 | 50,0 | 12 | 100 |
| Advanced | 8 | 44,4 | 10 | 55,6 | 18 | 100 |
| Total | 14 | 94,4 | 16 | 95,6 | 30 | 100 |

pvalue = 0,055

showed that value = 0.055 or more than α (0.05) which means there is no association between tuberculosis complications and a history of drug breakups.

DISCUSSION

Complications of Tuberculosis In Tuberculosis Sufferers

Based on Table 1 most respondents experienced advanced complications of tuberculosis as many as 16 respondents (53.3%) suffer from advanced complications. Meanwhile, 14 respondents experienced early complications (46.7%). Early complications are complications that only spread to the pulmonary concomitants such as pleural effusion, pneumonia, dyspnea, hematite. Complications of tuberculosis caused by the reactivation of old tuberculosis scars can occur if a patient has an immune disorder (Ward, J., Leach, 2010). Potential Complications caused by Malnutrition. This may be a consequence of the patient's lifestyle, lack of knowl-

edge about adequate nutrition and its role in health care (Dinkes, 2017). Factors that can affect complications are the work, age, and education of the sufferer. Following the results of this study that the work of respondents are mostly private employees 14 respondents (46.7%), complications caused by heavy work so one of the causes is due to factors of their work activities that are widely exposed to TB. In addition, the work is prone to fatigue. And physical fatigue factors can cause immunity decreases and easily contracted other infections that can cause advanced complications such as pulmonary TB with DM concomitant diseases (Junaidi, Sori, 2016). DM sufferers experience some immunological decline, and pulmonary physiological disorders in the cleaning process so that TB bacteria can spread easily. Any age that can affect complications is the age of the sufferer who is susceptible to the influx of infection. In this study, most of the respondents entered vulnerable adulthood, namely 50-55 years old as many as 13 respondents (43.3%) and male 17 respondents (56.7%). The

male group is most likely to spread TB infection. Another possibility is because of the male smoking behavior, physical activity of his work, and often ignore the treatment so that many whose treatments have not been completed but have stopped. The onset of infection that enters the lungs is also a factor in the occurrence of complications causing pulmonary CA, airway obstruction. According to the researchers Based on that most respondents experienced advanced complications of tuberculosis as many as 16 respondents (53.3%) suffer from advanced complications such as pulmonary cord, pneumothorax, and CAP, hyperglycemia, DM. Meanwhile, 14 respondents experienced early complications (46.7%). Early complications are complications that only spread to the pulmonary concomitants such as pleural effusion, pneumonia, dyspnea, hematite. So that the complications of advanced tuberculosis are complications that have spread to other organs. The spread of the disease is due to widespread germ infections, most of the respondents were 17 (56.7%) males the majority are about 50-55 years old. This age is included in adults who are susceptible to TB infection. Susceptibility to TB germs and other infections due to decreased immunity of the body at a vulnerable age can also cause physiological disorders. By causing TB+Dm. In addition, the work of the respondents was mostly private employees 14 respondents (46.7%), complications caused by heavy work so one of the causes is due to factors of their work activities that are widely exposed to TB. Therefore the effect of an unhealthy work environment because it works in the factory, or it can also be from less maintaining stamina of the body so that the body's immune system decreases and facilitates TB germ infection spread more widely such as the occurrence of Pulmonary CA, Dyspnea, Anemia and so on.

History of OAT Drug Breakup In Tuberculosis Patients

Based on Table 2 shows that most have a history of drug breakups at an advanced stage as many as 18 respondents (60%). The advanced stage is the OAT treatment stage that lasts 3-6 months. While 12 respondents (40%) others said they had experienced OAT treatment at the intensive stage, namely at the beginning of treatment until a period of 2 months. Drug breakup is a sufferer who does not take the drug 2 months in a row or more before the treatment period is completed (**Kemenkes,**

2011). Factors that can affect the history of drug breakup in people with tuberculosis are gender, education, occupation, and age. In this study, Most of the male gender was 17 respondents (56.7%). The male group was the group with the most lung TB in the study. It is also similar to study (2012) that the comparison of male sex with women suffering from TB by 3:2. Education for people with tuberculosis in elementary school is as many as 14 respondents (46.7%). Education is a factor that affects a person in seeking treatment. The lower the education the lower the information obtained about tuberculosis treatment. The employment status of the respondents was the majority of private employees who were busy working as employees, traders, factory workers industry. According to this researcher showed that 30 respondents who had a history of drug breakup at an advanced stage as many as 18 respondents (60%). The advanced stage is the OAT treatment stage that lasts 3-6 months. While 12 respondents (40%) others said they had experienced OAT treatment at the intensive stage, namely at the beginning of treatment until a period of 2 months. Drug breakups are caused by many factors including gender, age, occupation, and education. Most of the respondents were 17 (56.7%) male the majority are about 50-55 years old. This age is in adulthood vulnerable to TB infection. Respondent jobs Most of the private employees were 14 respondents (46.7%). The respondents' work that affects is Education. Education of the majority of primary school respondents (SD) 14 respondents (46.7%). The higher the education the more information or knowledge obtained by sufferers about tuberculosis treatment and vice versa the lower the respondent's education, the less knowledge about TB treatment information. treatment has not been completed for 6 months. Heavy work will also interfere with the treatment process.

The Correlation of History of Drug Breakup and Complications of Tuberculosis

Respondents who had a history of breaking up intensive drugs with early complications and advanced complications 6 respondents (50%), While respondents who had a history of breaking up advanced drugs mostly with advanced complications as many as 10 respondents (55.6%). *Spearman Rho test* results showed that value = 0.055 or more than α (0.05), so H_0 was accepted which means there is no link between a history of drug breakups

and tuberculosis complications. Complications that will occur bronchiectasis and pulmonary cavitation with secondary fungal infections (myeloma). Cranial nervus lesions and obstruction of the renal tract can occur due to the formation of scarring accompanied by healing after TB (Ward, J., Leach, 2010). According to the researchers, respondents who had a history of breaking up intensive drugs with early complications and advanced complications were 6 respondents (50%), while respondents who had a history of breaking up advanced drugs partially with advanced complications had as many as 10 respondents (55.6%). In this study, Most of the male gender was 17 respondents (56.7%). The group of men was the group most suffering from pulmonary TB this study in this study Most of the education of elementary school tuberculosis sufferers was as many as 14 respondents (46.7%). Education is a factor that affects a person in seeking treatment. Employment status of the majority of private employees 14 (46.7%) who are busy working as employees. The spread of infection in pulmonary TB was affected by the spread of germs that spread throughout the body, to the lungs, and even to another organ.

CONCLUSION

Based on the results of the study, it could be concluded that there was no correlation between tuberculosis complications and the history of drug breakups occur not only because of the drug breakup factor but could be due to the spread of increasingly widespread germ infections, the age of respondents, education, work, and also the knowledge of tuberculosis sufferers who lack awareness of maintaining health, doing check-up handling tuberculosis so that sufferers experience many complications.

SUGGESTION

For Health Institutions

Continue to improve the quality of health services, especially regarding the supervision of taking medication (PMO) in patients with pulmonary tuberculosis. By still reminding TB patients about the routine schedule of OAT drugs in accordance with the recommendations and monitoring the progress of the recovery of pulmonary TB patients and increasing intensive pulmonary TB care because pulmonary TB is a contagious disease, and always paying attention to the condition of the hospi-

tal environment as well as to the transmission and spread of comorbidities other.

For Family

Hope for the family of the patient is expected to provide strong family support for tuberculosis sufferers by reminding when taking medicine, delivering check-ups to health services, and reminding controls in health services

For respondents

Maintain the condition of the immune system to avoid various diseases or infections that attack by maintaining a healthy diet by eating lots of vegetables and fruit, getting enough rest, eating nutritious food, being active in sports and avoiding cigarettes and alcohol. To increase the patient's knowledge, it is better to do health counseling.

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