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The Difference Medical Compliance ARV in Patients Non-TB HIV and TB-HIV Patients in the Dots Room Jayapura Public Hospital

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Abstract

Adherence to taking ARV drugs in HIV/AIDS sufferers is very important because it can improve the quality of life of sufferers while preventing opportunistic diseases that can worsen adherence to taking medication. Patients infected with opportunistic diseases such as TB will have an impact on adherence to side effects and the amount of drugs they take. The aim of this study was to determine the differences in adherence to ARV treatment in HIV-non-TB patients and TB-HIV patients in the DOTS Poly Room, Jayapura Hospital. This study was a descriptive comparative observational approach with a two group case control study design in HIV-non-TB patients and TB-HIV patients in the DOTS Poli Room at Jayapura Hospital, consisting of 42 non-TB HIV patients and 21 TB HIV patients. The data was analyzed using a questionnaire and analyzed using an independent sample t test. The results showed that the characteristics of HIV Non TB and TB/HIV sufferers were mostly early adulthood (26-35 years) as many as 14 people (33.3%), 23 people (54.8%) male. Most of the education is high school graduates, as many as 39 people (92.9%) and as many as 34 people (81%) work. The length of treatment for the most respondents was 1-5 years as many as 27 people (64.3%). Treatment adherence to non-adherent HIV patients was mostly non-adherent with 13 houses (61.9) and as many as 8 people (30.1%). On the other hand, more TB/HIV patients were adherent as many as 16 people (76.2%) and a few who were non-adherent were 5 people (23.8%). There was a difference in the adherence of HIV non-TB patients who were more adherent than TB / HIV patients at the Poli Dots Rsud Jayapura (p-value = 0.012).

Keywords: Medical Compliance ARV; HIV Non TB Patient and TB-HIV

Introduction

Human Immunodeficiency Virus (HIV) is virusthat attack and damage white blood cells or human immune system that cause reduced or failed immune system. With the reduction or failure of the body's defense system, sufferers will fall into the stage of AIDS (Ministry of Health, 2014). A person who has HIV is one of two types of virus (HIV-1 or HIV-2) that progressively damages white blood cells *(lymphocytes)* causing reduced or failed immune system.

People with HIV/AIDS (ODHA) with progressively declining immune systems will facilitate opportunistic infections [1]. Compared to people without HIV, ODHA has a 20-fold risk of developing TB and this risk will continue to increase as CD4 levels decrease drastically [2]. Pulmonary tuberculosis is the most common infectious disease in people with HIV/AIDS in the world.

Mycobacterium tuberculosis is an infectious agent that appears as a latent infection reactivation in immune compliant patients or as a primary infection after transmission from person to person in various stages of HIV. TB infection itself can appear as pulmonary TB or extra lung TB on various cd4+cellcounts. Pulmonary tuberculosis is an infection that most commonly occurs in co-infection patients with TB-HIV, while extra lung TB can occur in patients with advanced immune deficiency (Ministry of Health RI, 2012).

Globally, there were 36.9 million HIV cases recorded as of 2019 and 21.6 million of them have received antiretroviral therapy or ARV. The number of HIV cases from 2005 to 2017 has increased every year [3]. The HIV pandemic in the world adds to the problem of TB Co-infection with HIV will increase the risk of TB incidence significantly.

World Health Organization report in 2019 of 23.3 million HIV cases received ARV therapy (62.2%) or 15.5 million people. About 80% of these TB-HIV co-infection patients are found in Sub-Saharan Africa and about 3 million of these TB-HIV co-infections are found in Southeast Asia [3]. Based on WHO data in 2019, the death rate from TB-HIV cases is 13 cases per 261,000 populations. In HIV-positive patients the likelihood of TB infection was found in more than 40% of patients, while the risk of reactivation of TB infection reached 2.5-15% annually in patients with HIV.

The number of HIV patients in Indonesia until March 2020 amounted to 338,363, which is 58.7% of the estimated ODHA of 640,443. Currently there are 5 provinces with the highest number of HIV cases, namely DKI Jakarta (60,501 cases) followed by East Java (50,060 cases), West Java (35,529 cases), Papua (33,485 cases) and Central Java (29,048 cases). Currently there are 5 provinces with the highest number of AIDS, namely Papua (22,544 people), East Java (20,113 people), Central Java (10,548 people), DKI Jakarta (10,116 people) and Bali (8,147 people). As of March 2019 in Papua Province, there have been 56,029 cases of HIV/AIDS.

The number of AIDS reported from 2005 to 2019 is relatively stable every year. The cumulative number of AIDS from 1987 to March 2019 was 115,601 people. Nationally the estimated prevalence of HIV among TB patients is estimated at 6.2%. In the case of TB-HIV co-infection without TB treatment, 100% of patients with HIV (+) will die, while the cure rate of TB with HIV (+) is not found to be self-cured [3].

Mortality rates in TB-HIV co-infection are four times greater than patients without TB/HIV is the main risk factor that causes TB to become active. Compliance consuming ARV can work by controlling the replication process of HIV that attacks the immune system by making fake copies of DNA. It makes HIV seem like a normal part of the body that is not threatening, so the immune system cannot detect the virus and the presence of HIV in the body remains safe.

To get the benefits of ARV, HIV sufferers must take medication for life. Because otherwise, the growth of the virus in the body is not controlled and can also appear resistance to drugs (Ministry of Health RI, 2014). As HIV infection develops the number and function of CD4+ lymphocytes will decrease. These cells have a very important role in fighting the bacteria *Mycobacterium tuberculosis,* so that the immune system becomes less able to prevent the development and also local spread of these germs (Ministry of Health RI, 2012).

Research conducted by Karima (2017), the group that obtained ART had a tendency of 0.44 times (95% CI: 0.36-0.53) to be exposed to TB compared to the group that did not get ART. This means that the administration of ART is a protective factor against TB. The group that obtained PP INH had a tendency of 0.42 times (95% CI: 0.28-0.63) to be exposed to TB compared to the group that did not get PP INH. This means that the administration of PP INH is a protective factor against TB.

Based on preliminary study data on March 25, 2020 at Poli TB DOTS RSUD Jayapura,

the number of TB sufferers in 2019 (January – October 2019) as many as 270 patients and patients who had TB infection co as many as 21 people. From ODHA data that access VCT services in the last 6 months intensively conducting VCT visits is 60% regular. While the target of regularity of service visits is 90% in TB-HIV patients.

Based on the results of interviews on 5 HIV patients who are less obedient because of the lack of knowledge about the benefits in consuming ARV and based on observations on 21 patients who have co-infection TB / HIV as many as 13 people because of non-compliant consumption of ARV. The purpose of the study was to find out "Differences in ARV Treatment Compliance in Non-TB HIV Patients and TB-HIV Patients in the Dots Poly Room of Jayapura Hospital".

Method of Research

This study is a comparative descriptive observational approach with the design of two group case control studies in patients with HIV Non TB and TB-HIV Patients in the Dots Room of Jayapura Hospital as many as 42 respondents consisting of 21 HIV Non TB Patients and 21 HIV TB Patients. The data was analyzed using questionnaires and analyzed using independent t test samples.

Results

Univariate Analysis

Characteristics of Respondents

Table 1 shows the age of the earliest adult respondents (26-35 years) as many as 14 people (33.3%), males as many as 23 people (54.8%). The education of the respondents was mostly high school graduates as many as 39 people (92.9%) and 34 people (81%) work. The duration of treatment was the most respondents between 1-5 years as many as 27 people (64.3%).

Table 1: Frequency Distribution of Respondent Characteristics Based on Age, Gender, Education, Occupation and Length of Treatment in Non TB HIV patients and TB/HIV Patients at Jayapura Hospital, July 2020 (n= 42).

Variable	Amount (n)	Percentage (%)
Age		
20-25 years old	12	28,6
26-35 years old	14	33,3
36-45 years old	11	26,2
> 45 years old	5	11,9
Gender		
Male	23	54,8
woman	19	45,2
Education		
Sma	39	92,9
College	3	7,1
Work		
Not working	8	19
work	34	81
Duration of Treatment		
1-5 years old	27	64,3
6-10 years old	10	23,8
11-15 years old	2	4,8
16-20 years old	3	7,1
Total	42	100

Patient Status

Based on Table 2, shows that the status of NON TB HIV patients as many as 21 people (50%) and the status of TB/HIV patients as many as 21 people (50%).

Table 2: Distribution of frequency of respondents based on Status Non TB and TB/HIV Patients in Jayapura Hospital, July 2020 (n = 42).

Patient Status	Amount (n)	Percentage (%)
HIV Non TB	21	50
TB/HIV	21	50
Total	42	100

Medical Compliance

Based on Table 3, shows that the compliance of treatment in non-TB HIV patients is the most non-compliant with 13 people (61.9) and compliance as many as 8 people (30.1%). In contrast, 16 more TB/HIV patients were pliant (76.2%) and a little disobedient as many as 5 people (23.8%).

Table 3: Distribution of frequency of respondents based on Medical Compliance at Jayapura Hospital, July 2020 (n = 42).

Medical Compliance	Non TB HIV Patients		TB/HIV Patients	
	N	%	N	%
Disobeying	13	61,9	5	23,8
obedient	8	38,1	16	76,2
Total	21	100	21	100

Bivariate Analysis

Differences in ARV Treatment Compliance in Non TB HIV Patients and TB-HIV Patients in The Dots Poly Room of Jayapura Hospital

Based on Table 4 above, shows that the average difference in compliance of NON TB patients is 1.38 and TB / HIV is 1.76 with an average difference of 0.381. Statistical test results on 95% of the value of *p-value* = 0.012 greater than the value of a = 0.05 stated that there is difference in compliance of NON TB patients more obedient than TB / HIV patients in Poli Dots RSUD Jayapura.

Table 4: Differences in ARV Treatment Compliance in Non TB HIV Patients and TB-HIV Patients in Dots Poly Room of Jayapura Hospital, July 2020 (n= 42).

Patient Status	X Mean	X Standard Deviation	Mean Difference	*p-value*
HIV Non TB	1,38	0,498	0,381	0,012
TB/HIV	1,76	0,436		

Discussion

Characteristics of Respondents

Age

The results of the study obtained the age of HIV patients in Jayapura Hospital most early adult age 26-35 years (33.3%) and late teens (20-25 years old). This indicates that at that age it has been exposed to > 5 years so that it can be diagnosed. This is according to Mansjoer (2012) [4], which people diagnosed with HIV / AIDS aged < 25 years means that they have been exposed to the HIV virus in their teens at the age of 15-17 years. HIV/AIDS takes 8-10 years to show its clinical symptoms since first infection [4]. This is in accordance with research that found adulthood (>24 years) is the largest contributor to HIV / AIDS disease (Ministry of Health, 2016).

This research is in line with the research conducted by Manowati (2019) [13], at Dr. Soetomo Hospital Surabaya that at a young age will increase the risk of ODHA to fail follow-up. The possibility of ODHA failing to follow-up at a younger age due to psychological rejection that they have been infected with HIV they are trying to find alternative treatments. Research shows that ODHA with < age of 35 years is more at risk for follow-up failure (Honge, 2013).

Based on statistical data reports that is the age uses the most ARV is the age group 20 - 29 years. In addition, the age also has a high rate of pain and death. Basically the age is called young adult is more difficult to comply with the treatment regimen than in old adults (Ministry of Health RI, 2014). Age as one of the characteristic traits about people is quite important because quite a lot of diseases are found with varying frequencies caused by age.

Gender

The results of the study obtained the sex of HIV / AIDS patients in Jayapura Hospital are mostly male (54.8%) while 45.2% were women. This shows that people with HIV / AIDS more in men. This research was conducted by Nurmawati (2019) [8], who found the most HIV/AIDS sufferers in men.

The results of this study are in line with the National Report conducted by Spiritia Foundation, that the number of male sufferers is more than that of female sufferers. The trend also applies to regional and national levels. Data on HIV/AIDS sufferers in Indonesia shows that men have two to three times greater risk factors compared to women infected with HIV/AIDS [5]. The higher probability in men occurs due to transmission through commercial sex workers (PSK) [6].

A research study conducted by Nyoko (2016) [14], showed that transmission of HIV from men to women doubled compared to the other way around. Women are also more susceptible to contracting and suffer more from the disease. HIV transmission in women also continues at risk of transmitting to infants if they become pregnant where the risk is 15-40%.

The proportion of men suffering from HIV/AIDS in Jayapura Hospital from the data obtained due to the number of men who have sexual intercourse is at risk and use injectable drugs compared to women who get it more often from their sexual partners.

Education

The results of the study obtained the education of HIV / AIDS patients in Jayapura Hospital, the majority of high school educated (92.9%) and college 7.1%. The results of this study

showed that respondents' education is quite good for medical compliance.

The results of this study are similar to Prihantana research (2016) [16], which found the education of HIV/AIDS sufferers most highly educated in high school. Education consists of a teaching and learning process that can change an individual from ignoring to knowing. Thus education can have an effect on changes in individual behavior in relation to this is that in adolescence, namely high school there is a possibility that the individual has been exposed to risky behavior so that within < 7 years the individual has been diagnosed as an HIV sufferer so that the importance of true and appropriate HIV/AIDS knowledge becomes one of the important points to avoid HIV/AIDS transmission.

A person's level of education affects the ability to absorb and receive health information. In addition, education also affects better behavior. Based on the level of education, respondents are considered to have been able to receive information about a disease treatment, where HIV/ AIDS disease requires good knowledge to help the success of treatment. The higher the level of education of respondents, the better the acceptance of information about the treatment of the disease so that the more regular the treatment.

Occupation

The results of the study obtained by the work of HIV /AIDS patients in Jayapura Hospital were dominated by patient already working (81%) that is dominated by private workers. This is possible because people with HIV/AIDS in Jayapura Hospital are in the productive working age group. This research is in line with Karima's research (2017) at one of Bogor district hospitals obtained that the proportion of people with HIV /AIDS according to the work of most private employees and further found that work is not related to compliance with drug drinking. Work is something done for a living, livelihood [7].

Another case according to Pariaribo (2017) [15], that respondents who work often have difficulty in leaving work when having to take ARV drugs. Another obstacle is due to fear of being kicked out of work when often permission to take the drug. In addition, people with HIV/AIDS who work often experience individual constraints on compliance, forget to take medication because it is too busy on the grounds of disrupting daily activities. Work relates to income earned. The result of the respondent's work can earn wages used in the fulfillment of daily needs, so as to support transportation costs in taking ARV drugs that can affect the compliance of taking ARV drugs.

Length of treatment

The results of the study obtained the length of treatment of HIV / AIDS patients in Jayapura Hospital with duration of treatment of 1 -5 years as many as 27 people (64.3%). This research is in line with previous research by Nurmawati (2019) [8], that most people with HIV / AIDS with a duration of treatment < 5 years. According to Aryani (2018) [9], who found that the duration of treatment affects the compliance of people with HIV / AIDS (ODHA) in taking ARV drugs including saturation. Usually saturation begins to occur when people with HIV have been taking ARV medication for 6 months because HIV patients must take medication every day and already feel bored or already feel healthy. The length of treatment can affect the level of adherence to treatment in people with HIV / AIDS due to the cost of treatment, side effects of drugs, and stigma of the environment. It will lead to decreased endurance and susceptible of the transmission of other infectious diseases such as tuberculosis.

Medical Compliance

Compliance with HIV/AIDS treatment in Jayapura Hospital in the most non-TB HIV patients did not comply with 13 people (61.9) and obeyed as many as 8 people (30.1%). In contrast, 16 more TB/HIV patients were pliant (76.2%) and a little disobedient as many as 5 people (23.8%). The data showed that the number of patients who do not comply with HIV causes the immune system to decrease so that it is found with TB co-infection disease.

Research conducted by Saputro (2017) [10], showed results where knowledge and perception have a relationship with ODHA compliance in undergoing ARV therapy. ODHA treatment with ARV administration should be followed by the compliance of taking drugs, therefore before starting therapy will be conducted compliance counseling activities. Hiv information is one of the counseling activities that allow ODHA to form compliance (Ministry of Health, 2016).

Mycobacterium tuberculosis is an infectious agent that appears as a latent infection reactivation in immune compliant patients or as a primary infection after transmission from person to person in various stages of HIV. TB infection itself can appear as pulmonary TB or extra lung TB in various cd4+ cell counts. Pulmonary tuberculosis is an infection that most commonly occurs in co-infection patients with TB-HIV, while extra lung TB can occur in patients with advanced immune deficiency (Ministry of Health RI, 2012).

Who recommends administering Antiretroviral drugs (ARV) in all TB-HIV co-infection patients regardless of cd4 amount. ARV administration is recommended to be done in an integrated manner with the administration of OAT, i.e. within 2-8 weeks after starting OAT therapy. ARV administration should not be delayed until the completion of OAT therapy as it relates to increased morbidity and mortality. On the other hand, OAT and ARV administration should not be started simultaneously. The optimal time of administration of integrated OAT and ARV depends on the patient's immune status [3].

In addition, all ODHA suffering from tuberculosis should obtain cotrimoxazole prophylaxis to prevent opportunistic infections of ODHA. The administered dose of cotrimoksazole is 960 mg once a day. ODHA that gets prophylactic therapy with cotrimoksazole should be subjected to stricter drug side effects monitoring. To overcome the neuropathy side effects caused by isoniazid, it is recommended that the administration of OAT accompanied by the administration of pyridoxine (vitamin B6) [3].

ODHA who has undergone ARV treatment and is later diagnosed with tuberculosis should continue ARV treatment and start OAT therapy as soon as possible. If the HIV virus has been successfully suppressed and the ARV that has been consumed can be well tolerated, the ARV regimen should be continued and the OAT regimen adjusts. In general, the first OAT given is an empirical regimen (isoniazid, rifampicin, pyrazinamide, and etambutol) administered daily using a drug control (PMO). One of the important things to note in the administration of OATs in ODHA is to choose a type of rifamycin that will reduce the possibility of drug interactions with ARV and inhibit the suppression of HIV virus [3].

The standard duration of OAT therapy in ODHA which is also in ARV therapy is six months, namely 2 months intensive phase (2RHZE) and 4 months advanced phase (4RH). In conditions where ARV is not administered during OAT therapy (ex: ARV is not available and drug interaction considerations), the advanced phase of OAT should be extended by 3 months to a total of 7 months of advanced phase and total OAT therapy for 9 months. In addition, in tuberculosis patients with positive cavitation and sputum culture after 2 months of OAT therapy, the duration of the advanced phase should be extended to 7 months [3].

ARV works by controlling the replication process of HIV that attacks the immune system by making fake copies of DNA. It makes HIV seem like a normal part of the body that is not threatening, so the immune system cannot detect the virus and the presence of HIV in the body remains safe. To get the benefits of ARV, HIV sufferers must take medication for life. Otherwise, the growth of the virus in the body is not controlled and can also appear resistance to drugs (Ministry of Health RI, 2014). According to the Ministry of Health (2014), treatment using ARV therapy is done for life, therefore it takes a high level of compliance in terms of taking drugs (>95%). Compliance in treatment is necessary to reduce viral replication and improve clinical and immunological conditions, reduce the onset of ARV resistance and lower the risk of HIV/AIDS transmission.

Adherence to Antiretroviral Therapy (ART) is key to suppressing the development of HIV disease, reducing the risk of drug resistance, improving overall health, quality of life, survival and reduced risk of transmission of HIV disease. A patient must comply with ARV therapy to prevent transmission from the patient to another person. Non-compliance with ARV drugs in patients can increase the risk of HIV transmission from patients to others (Ministry of Health, 2011).

Differences in ARV Treatment Compliance in Non TB HIV Patients and TB-HIV Patients in the Dots Room of Jayapura Hospital

The results of the study obtained from the results of statistical tests obtained that there is a difference in compliance of NON TB HIV patients more obedient than TB / HIV patients. The average difference between non-TB HIV patients was 1.38 and TB/HIV was 1.76 with an average difference of 0.381. This study is in line with Permitasari (2012) [11], that HIV sufferers who are mostly non-compliant are found to increase the incidence of TB co-infection. Compliance with ARV drugs has a variety of side effects as well as toxic effects. With the right dose alone, the effect often appears let alone the enlarged dose, whereas when the dose is less the drug will be ineffective. Drugs with predetermined doses are effective enough to suppress the development of the virus. HIV cannot be eliminated or turned off; it can only be suppressed with ARV drugs. So the goal of ARV treatment focuses on suppressing viral replication thus drinking ARV should be for life (Nirmala, 2010) [12].

The findings prove that there are differences in compliance in people with HIV Non TB and TB HIV where HIV patients adhere to higher in HIV Non TB patients, so that patients do not experience TB co-infection. According to the Ministry of Health (2012, when HIV infection develops then the number and function of CD4+ T-lymphocytes will decrease. These cells play a very important role in fighting the bacterium Mycobacterium tuberculosis, so the immune system becomes less able to prevent the development and also local spread of these germs. Extra lungs tuberculosis and disseminate are becoming more common [14-28].

In addition, when the sufferer has confection TB causes the administration of combination drugs increased compared to patients without co-infection. This leads to lower compliance with TB/HIV. Patients who will receive treatment for TB-HIV co-infection need to be given knowledge about the side effects of both mild and severe treatment and what to do next. Here the service of officers, especially in CST clinics is very instrumental to motivate the compliance of patients to achieve therapeutic success. The non-compliance of patients in this therapy can have a large negative effect. Compliance is a multidimensional phenomenon where it is determined by the health care, therapeutic factors, patient factors, health system factors and social factors or support from those closest to you.

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