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Description Of The Usage Of Antiretroviral Medicine With Atc/Ddd Method In The Primary Health Care Centers Of Kediri 2021

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ABSTRACT

AIDS *(Acquired Immune Deficiency Syndrome)* is a collection of symptoms and infections caused by damage to the human immune system, HIV *(Human Immunodeficiency Virus*), a virus that can weaken human immunity. PLWHA patients must undergo antiretroviral virus (ARV) drug therapy, one of the drug use analysis classification systems is using the ATC/DDD system which is a means of researching drug use in an effort to improve the quality of drug use, one of these components is the presentation and comparison of drug consumption levels. international. The aim of this research is to determine the use of antiretroviral drug consumption in primary health care center in the Kediri City area for the 2021 period using the Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD) method. The design of this research is quantitative descriptive, namely describing a particular event systematically and accurately and the treatment of this research is the process of collecting data and evaluating the use of antiretroviral drugs as well as verifying Primary health care center data by interviewing primary health care center pharmacists in the Kediri city area in 2021. Consumption of antiretroviral drugs (ARVs).) is highest in the Campurejo primary health care center, namely Lamivudine (3TC) as much as 31.71%, Balowerti in primary health care center with Zidovudine (AZT) as much as 29.02% and Pesantren 1 primary health care center with the drug Nevirapine (NVP) as much as 32.62%, while the use of ARV drugs is low. At the Campurejo primary health care center, it was 0.0002% of the drug Dolutegravir (DTG), and at the Balowerti primary health care center, it was 0.0012% of the drug Dolutegravir (DTG), then at Pesantren 1 primary health care center , it was 0.0015% of the drug Dolutegravir (DTG). The incidence of HIV is still high in Indonesia, especially in the city of Kediri.

Keywords: Antiretrovirals, ATC/DDD, HIV/AIDS

INTRODUCTION

AIDS *(Acquired Immune Deficiency Syndrome)* is a collection of symptoms and infections caused by damage to the human immune system, HIV *(Human Immunodeficiency Virus)* is a virus that can weaken human immunity. The HIV/AIDS case is a very fatal case in society, because every sufferer will end up dying (Nur Afi Darti, 2019). According to (Ghebreyesus, 2021)the United Nations Program on HIV/AIDS (UNAIDS) and WHO *(World Health Organization)* in 2020, they released a statement that in 2020 there were one to two million new cases of HIV/AIDS with a death toll of almost 1 million cases in 2020 with total data on HIV/AIDS patients is 374 million people, the Ministry of Health of the Republic of

Indonesia stated that the number of PLWHA patients in 2020 was 543,100 people in Indonesia and according to the section for prevention and control of infectious diseases. HIV in East Java in 2020 was 7,395 people (dr. Herlin Perliana, 2021). (Moeloek, Kementerian Kesehatan Republik Indonesia, 2019) and (Ghebreyesus, 2021). One of the ways in which the achievement of optimal public health is supported by public health services is that the primary health care center is obliged to seek, provide and organize quality services and meet the community's needs for quality health services (Moeloek, Kementerian Kesehatan Republik Indonesia, 2019). Every clinical pharmacy service activity must be carried out in accordance with standard operational procedures, such as evaluation of drug use which aims to obtain an overview of drug use patterns in certain cases. (Moeloek, Peraturan Menteri Kesehatan Republik Indonesia, 2016). One of the classification systems for drug use analysis is the Anatomical Therapeutic Chemical/Defined Daily Dose ATC/DDD system (Ghebreyesus, 2021). Therefore, Anatomical Therapeutic Chemical/Defined Daily Dose ATC/DDD as a means of research seeks to improve the quality of drug use.

METHODS

This research design uses a quantitative descriptive research design, namely describing a particular event systematically and accurately and the treatment of this research is the process of collecting data and evaluating the use of antiretroviral drugs as well as data verification in the form of interviews with primary health care center pharmacists in the Kediri city area including Campurejo primary health care center, Balowerti primary health care center and Pesantren 1 primary health care center.

RESULTS AND DISCUSSION

A. ATC/DDD Calculation for Campurejo Primary Health Care Center

Diagram 1. Use of ARV drugs at Campurejo Primary Health Care Center

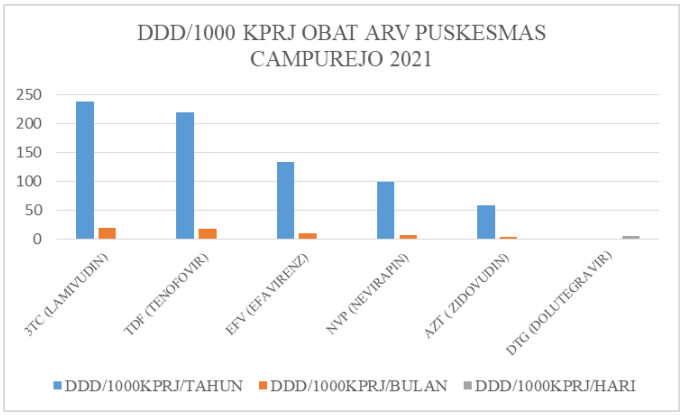

Diagram 1. above explains that data on the use of ARV drugs at CAMPUREJO PRIMARY HEALTH CARE center 2021 with total use in one year for 3TC (Lamivudine) = 3934 grams with a weighted DDD = 13113 and TDF (Tenofovir) = 2961 grams with a weighted DDD = 12086 and EFV (Efavirenz) = 4438 grams with Weighted DDD = 7396 and NVP (Nevirapin) = 2199 grams with Weighted DDD = 5496 and AZT (Zidovudine) = 1967 grams with Weighted DDD = 3261 and DTG (Dolutegravir) = 5.35 grams with Weighted DDD = 0.107.

Diagram 2. DDD/1000 KPRJ Result Data for Campurejo Primary Health Care Center

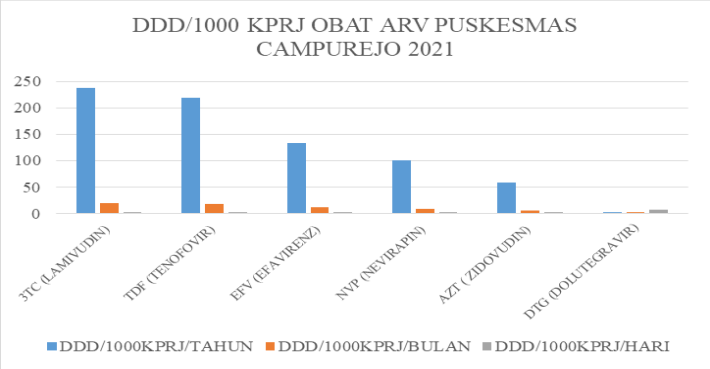

Diagram 2, above explains that the DDD/1000/KPRJ of ARV drugs in CAMPUREJO PRIMARY HEALTH CARE CENTER 2021 with the drug name 3TC (Lamivudine) = DDD/1000/KPRJ/YEAR = 238, DDD/1000/KPRJ/MONTH = 20, DDD/1000/KPRJ /DAY = 0.762, and TDF (Tenofovir) = DDD/1000/KPRJ/YEAR = 219, DDD/1000/KPRJ/MONTH = 18, DDD/1000/KPRJ/DAY = 0.702 and EFV (Efavirenz) = DDD/1000/ KPRJ/YEAR = 134, DDD/1000/KPRJ/MONTH = 11, DDD/1000/KPRJ/DAY = 0.430, and NVP (Nevirapine) = DDD/1000/KPRJ/YEAR = 100, DDD/1000/KPRJ/MONTH = 8, DDD/1000/KPRJ/DAY = 0.319, and AZT (Zidovudine) = DDD/1000/KPRJ/YEAR = 59, DDD/1000/KPRJ/MONTH = 5, DDD/1000/KPRJ/DAY = 0.189 and DTG (Dolutegravir) = DDD/1000/KPRJ/YEAR = 0.0019, DDD/1000/KPRJ/MONTH = 0.00016, DDD/1000/KPRJ/DAY = 6.22.

Table 1. DU 90% Campurejo Primary Health Care Center

DRUG NAME	DU 90%	TOTAL
3TC (LAMIVUDIN)	31.71	31.71
TDF (TENOFOVIR)	29.22	60.93
EFV (EFAVIRENZ)	17.88	78.81
NVP (NEVIRAPIN)	13.28	92.09
AZT (ZIDOVUDINE)	7.88	99.97
DTG (DOLUTEGRAVIR)	0.03	100
TOTAL	100%	100

Table 1. above explains that the calculation of *Drug Utilization* (DU 90%) AT CAMPUREJO PRIMARY HEALTH CARE CENTER for each drug includes 3TC (Lamivudine)

= 31.71% and TDF (Tenofovir) = 29.22% and EFV (Efavirenz) = 17.88% and NVP (Nevirapine)

= 13.28% and AZT (Zidovudine) = 7.88% and DTG (Dolutegravir) = 0.03%.

B. ATC/DDD Calculation for Balowerti Primary Health Care Center

Diagram 3. Use of ARV drugs at Balowerti Primary Health Care Center

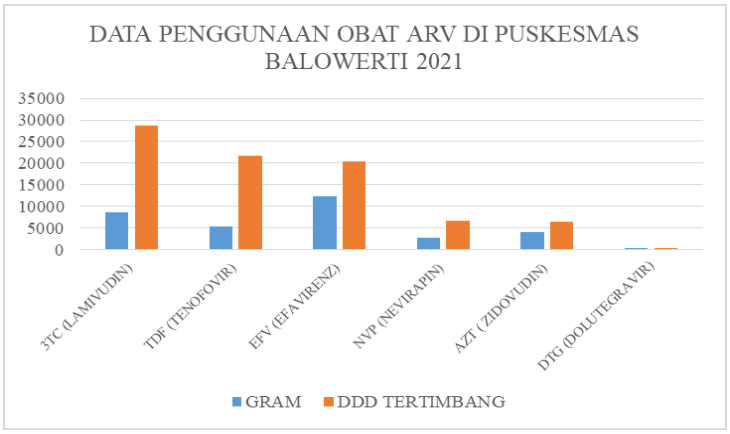

Diagram 3. above explains that data on the use of ARV drugs at the BALOWERTI PRIMARY HEALTH CARE CENTER 2021 with total use in one year for the drug 3TC (Lamivudine) = 8609 grams with a weighted DDD = 28695 and TDF (Tenofovir) = 5304 grams with a weighted DDD = 21649 and EFV (Efavirenz) = 12281 grams with Weighted DDD = 20469 and NVP (Nevirapin) = 2682 grams with Weighted DDD = 6705 and AZT (Zidovudine) = 3915 grams with Weighted DDD = 6525 and DTG (Dolutegravir) = 69 grams with Weighted DDD = 1.38.

Diagram 4. DDD/1000 KPRJ Result Data for Balowerti Primary Health Care Center

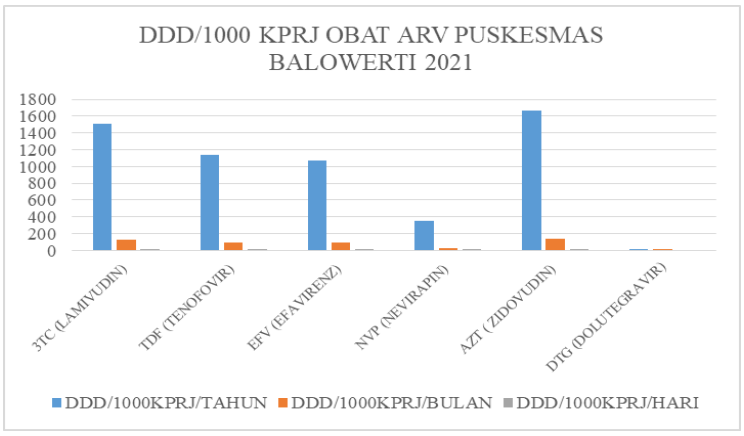

Diagram 4. above explains that the DDD/1000/KPRJ of ARV drugs in BALOWERTI PRIMARY HEALTH CARE CENTER 2021 with the drug name 3TC (Lamivudine) = DDD/1000/KPRJ/YEAR = 1509, DDD/1000/KPRJ/MONTH = 126, DDD/1000/KPRJ /DAY = 4,191, and TDF (Tenofovir) = DDD/1000/KPRJ/YEAR = 1139, DDD/1000/KPRJ/MONTH = 95, DDD/1000/KPRJ/DAY = 3,162, and EFV (Efavirenz) = DDD/1000 /KPRJ/YEAR = 1076, DDD/1000/KPRJ/MONTH = 90, DDD/1000/KPRJ/DAY = 2,989 and NVP (Nevirapine) = DDD/1000/KPRJ/YEAR = 352.5, DDD/1000/KPRJ/ MONTHS = 29.3, DDD/1000/KPRJ/DAY

= 0.979 and AZT (Zidovudine) = DDD/1000/KPRJ/YEAR = 1666.6, DDD/1000/KPRJ/MONTH = 139, DDD/1000/KPRJ/DAY = 4,629, and DTG (Dolutegravir) = DDD/1000/KPRJ/YEAR = 0.072, DDD/1000/KPRJ/MONTH = 0.006, DDD/1000/KPRJ/DAY = 0.0002.

Table 2. DU 90% Balowerti Primary Health Care Center

DRUG NAME	DU 90%	TOTAL
3TC (LAMIVUDIN)	26.27	26.27
TDF (TENOFOVIR)	19.82	46.09
EFV (EFAVIRENZ)	18.74	64.83
NVP (NEVIRAPIN)	6.13	70.96
AZT (ZIDOVUDINE)	29.02	99.98
DTG (DOLUTEGRAVIR)	0.02	100
TOTAL	100%	100

Table 2. above explains that the calculation of Drug Utilization (DU 90%) at the BALOWERTI PRIMARY HEALTH CARE CENTER for each drug includes 3TC (Lamivudine)

= 26.27% and TDF (Tenofovir) = 19.82% and EFV (Efavirenz) = 18.74% and NVP (Nevirapine)

= 6.13% and AZT (Zidovudine) = 29.02% and DTG (Dolutegravir) = 0.02%.

C. ATC/DDD Calculation for Pesantren 1 Primary Health Care Center

Diagram 5. Use of ARV drugs Pesantren 1 Primary Health Care Center

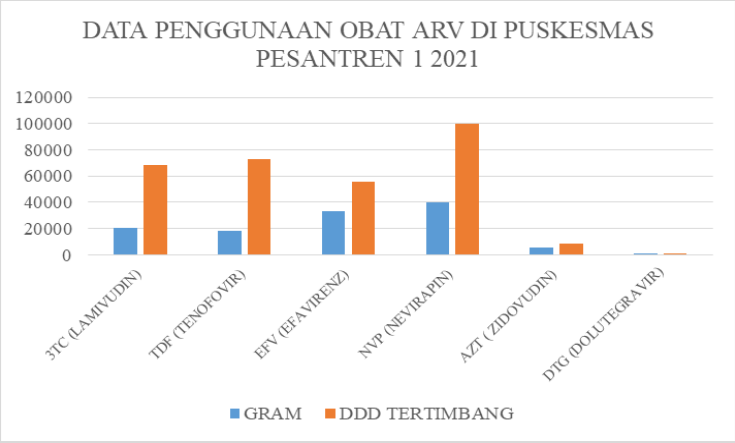

Diagram 5. above explains that data on the use of ARV drugs at PESANTREN 1 PRIMARY HEALTH CARE CENTER 2021 with total use in one year for the drug 3TC (Lamivudine) = 20637 grams with a weighted DDD = 68790 and TDF (Tenofovir) = 17955 grams with a weighted DDD = 73285 and EFV (Efavirenz) = 33228 grams with Weighted DDD

= 55380 and NVP (Nevirapin) = 39960 grams with Weighted DDD = 99900 and AZT (Zidovudine) = 5310 grams with Weighted DDD = 8850 and DTG (Dolutegravir) = 232.5 grams with Weighted DDD = 4.65.

Diagram 6. DDD/1000 KPRJ Result Data for Pesantren 1 Primary Health Care Center

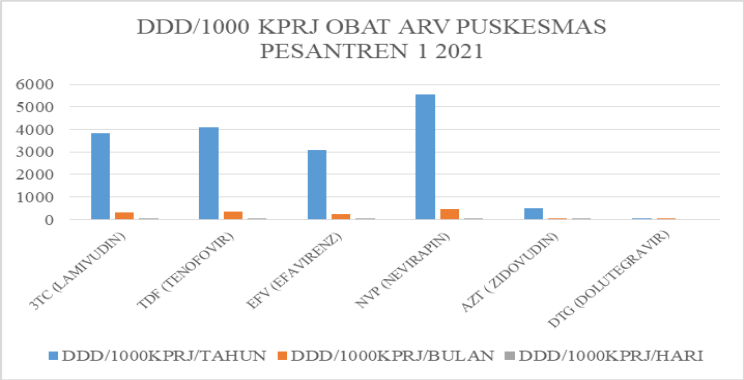

Diagram 6. above explains that the DDD/1000/KPRJ of ARV drugs at PESANTREN 1 PRIMARY HEALTH CARE CENTERS 2021 with the drug name 3TC (Lamivudine) = DDD/1000/KPRJ/YEAR = 3833, DDD/1000/KPRJ/MONTH = 319, DDD/1000/ KPRJ/DAY = 12.28 and TDF (Tenofovir) = DDD/1000/KPRJ/YEAR = 4084, DDD/1000/KPRJ/MONTH = 340, DDD/1000/KPRJ/DAY = 13.08, and EFV (Efavirenz) = DDD/1000/KPRJ/YEAR = 3087, DDD/1000/KPRJ/MONTH = 257, DDD/1000/KPRJ/DAY = 9.89, and NVP (Nevirapine) = DDD/1000/KPRJ/YEAR = 5567, DDD /1000/KPRJ/MONTH = 464, DDD/1000/KPRJ/DAY = 17.84, and AZT (Zidovudine) = DDD/1000/KPRJ/YEAR = 493, DDD/1000/KPRJ/MONTH = 42, DDD/1000 /KPRJ/DAY = 1.58, and DTG (Dolutegravir) = DDD/1000/KPRJ/YEAR = 0.259, DDD/1000/KPRJ/MONTH = 0.021, DDD/1000/KPRJ/DAY = 0.00083.

Table 3. DU 90% Pesantren 1 Primary Health Care Center

DRUG NAME	DU 90%	TOTAL
3TC (LAMIVUDIN)	22.46	22.46
TDF (TENOFOVIR)	23.93	46.39
EFV (EFAVIRENZ)	18.08	64.47
NVP (NEVIRAPINE)	32.62	97.09
AZT (ZIDOVUDINE)	2.89	99.98
DTG (DOLUTEGRAVIR)	0.02	100
TOTAL	100%	100

Table 3. above explains that the calculation of *Drug Utilization* (DU 90%) at Pesantren 1 Primary Health Care Center for each drug includes 3TC (Lamivudine) = 22.46% and TDF (Tenofovir) = 23.93% and EFV (Efavirenz) = 18.08 % and NVP (Nevirapine) = 32.62% and AZT (Zidovudine) = 2.89% and DTG (Dolutegravir) = 0.02%.

D. Patient Demographic Data

Table 4. Demographic Data of Campurejo Primary Health Care Center Patients

Age	
Children (0-12 years)	1
Teenagers (13-17 years)	-
Adults (18-59 years)	55
Elderly (> 60 years old)	-
Gender	
Man	36
Woman	20
Address	
Kediri City	22
Outside Kediri City	34
Stadiums	
1	34
2	5
3	12
4	5
Concomitant Diseases	
Diabetes mellitus	-
Tuberculosis	6
Hepatitis	-

Table 6. Demographic Data of Pesantren 1 Primary Health Care Centers Patients

Age	
Children (0-12 years)	-
Teenagers (13-17 years)	25
Adults (18-59 years)	207
Elderly (> 60 years old)	-
Gender	
Man	198
Woman	34
Address	
Kediri City	-
Outside Kediri City	-
Stadiums	
1	224
2	5
3	2
4	1
Concomitant Diseases	
Diabetes mellitus	-
Tuberculosis	-
Hepatitis	-

Research was carried out using a quantitative descriptive research design where this research used the Anatomical Therapeutic Chemical/Defined Daily Dose ATC/DDD system to determine drug consumption patterns, especially ARV drugs (MScPharm/MPH, 2021) found in Kediri city Primary Health Care Centers, including CAMPUREJO PRIMARY HEALTH CARE CENTERS, BALOWERTI PRIMARY HEALTH CARE CENTERS and PESANTREN 1 PRIMARY HEALTH

CARE CENTERS, where there were patients PLWHA with ARV drug therapy in outpatients specifically for PLWHA patients shows that the number of drug consumption patterns for antiretroviral drugs consumed by PLWHA patients can be concluded by the highest ARV drug consumption pattern at CAMPUREJO PRIMARY HEALTH CARE CENTERS, namely Lamivudine (3TC) at 31.71%,

BALOWERTI PRIMARY HEALTH CARE CENTERS with Zidovudine (AZT) as much as 29.02% and PESANTREN 1 PRIMARY HEALTH CARE CENTERS with the drug Nevirapine (NVP) as much as 32.62%, while the ARV drug which is little used at CAMPUREJO PRIMARY HEALTH CARE CENTERS is the drug Dolutegravir (DTG) as much as 0.0002% and BALOWERTI PRIMARY HEALTH CARE CENTERS with the drug Dolutegravir (DTG) as much as 0.0012% then with the PESANTREN 1 PRIMARY HEALTH CARE CENTERS with the drug Dolutegravir (DTG) as much as 0.0015%.

The pattern of HIV/AIDS transmission based on the age group of PLWHA patients with the criteria being that adults aged 18-59 years are the most common, followed by teenagers aged 12-17 years and children aged 0-12 years and lastly by the elderly group. with an age range of over 60 years, with the largest population in each health center and dominated by men, based on research conducted by (Ambar Yunita Nugraheni, 2019). mention that male adult patients are more affected by HIV/AIDS than female and child patients because in this age range they have high sexual activity supported by promiscuity which is the main cause of the high rate of transmission of HIV/AIDS.

Based on the results of research that has been carried out at several primary health care centers including CAMPUREJO PRIMARY HEALTH CARE CENTERS, BALOWERTI PRIMARY HEALTH CARE CENTERS and Pesantren 1 PRIMARY HEALTH CARE CENTERS , results were obtained based on the domicile addresses of PLWHA patients, which are mostly found in areas outside the city of Kediri compared to areas within the city of Kediri, with the number of domiciles outside the city of Kediri at the CAMPUREJO PRIMARY HEALTH CARE CENTERS 34 people and 22 people domiciled in the city of Kediri, and for domiciles outside the city of Kediri at the BALOWERTI PRIMARY HEALTH CARE CENTERS 72 people and domiciles outside the city of Kediri as many as 24 people and for the PESANTREN 1 PRIMARY HEALTH CARE CENTERS it is not listed because the primary health care centers did not attach the relevant data.

Based on clinical stage, PLWHA patients are recorded at stage 1 with the largest population found in CAMPUREJO PRIMARY HEALTH CARE CENTERS, BALOWERTI PRIMARY HEALTH CARE CENTERS and PESANTREN 1 PRIMARY HEALTH CARE CENTERS, so that ARV therapy treatment can be immediately given to PLWHA patients who have been detected with the first line regimen containing 2 NRTIs (nucleoside reverse transcripse inhibitor) + 1 NNRTI (non nucleoside reverse transcription inhibitor) combination of a fixed dose once a day TDF + 3TC or FTC + EFV this combination is less likely to cause serious side effects (Ministry of Health of the Republic of Indonesia, 2019). at the CAMPUREJO PRIMARY HEALTH CARE CENTERS there were 34 PLWHA patients with clinical stage 1, 5 people with stage 2, 12 people with stage 3 and 5 people with stage 4, then for the BALOWERTI PRIMARY HEALTH CARE CENTERS there were 61 PLWHA patients with clinical stage 1, and stage 2. 21 people, 10 people with stage 3 and 4 people with stage 4, while at the PESANTREN 1 PRIMARY HEALTH CARE CENTERS there were 224 PLWHA patients with clinical stage 1, 5 people with stage 2, 2 people with stage 3 and 1 person with stage 4.

PLWHA patients usually also have co-infections such as Tuberculosis (TB), one of the most frequently found in PLWHA patients at CAMPUREJO PRIMARY HEALTH CARE CENTERS, BALOWERTI PRIMARY HEALTH CARE CENTERS and PESANTREN 1 PRIMARY HEALTH

CARE CENTERS so the ARV drug regimen must be considered with these co-infections, Efavirenz in first-line treatment is highly recommended for PLWHA patients with Tuberculosis (TB) co-infection who receive the drug rifampicin and it can also be used in pregnant women with a combination of TDF+3TC+EFV so that it is the main choice in first-line ARV guidelines, apart from Tuberculosis (TB) co-infection there are also Diabetes co-infections Miletus (DM) and Hepatitis (HT) were found at CAMPUREJO PRIMARY HEALTH CARE CENTERS for Tuberculosis (TB) co-infection as many as 6 people and for Diabetes Miletus (DM) and Hepatitis (HT) co-infection were not found, and for BALOWERTI PRIMARY HEALTH CARE CENTERS there were PLWHA patients with co-infection. TB infection was 2 people, Diabetes Miletus (DM) co-infection was 2 people and Hepatitis (HT) co- infection was 1 person, and finally at the PESANTREN 1 PRIMARY HEALTH CARE CENTERS, no related data was attached (Moeloek, Kementerian Kesehatan Republik Indonesia, 2019).

The antiretroviral viral drugs consumed by PLWHA patients also have their own side effects, but research that has been carried out has found that PLWHA patients experience several complaints such as nausea, vomiting, dizziness, drowsiness, difficulty concentrating and rashes, so the side effects that PLWHA patients have experienced cannot be tolerated then the right option is to change the drug to avoid side effects (Moeloek, Kementerian Kesehatan Republik Indonesia, 2019).

Antiretroviral drug side effects also affect the compliance of PLWHA patients in taking ARV drugs, the importance of ARV therapy in suppressing the HIV virus so that there is no increase in the clinical stage, in carrying out ARV therapy there are several influencing factors such as patient characteristics, physical form and side effects of the drug, availability medication coupled with negative stigma from society, not feeling the severity of their health condition, knowledge, giving, giving motivation, healthy and improving condition after treatment, family support, the role of health workers and peer support groups, environment, commitment of PLWHA to undergo treatment, perception PLWHA, access to health services, as well as counseling services for PLWHA patients regarding adherence to ARV therapy (Sholihatul Mukarromah, 2021).

ARV drugs consumed by PLWHA patients are government program drugs where the reporting of these drugs is through the SIHA system (HIV AIDS Information System). Pharmacists have an important role in entering data on drug needs for primary health care centers or hospitals where the data entered by pharmacists via SIHA will be synchronized automatically. automatically at the Health Service so that the amount of medicine needed matches the medicine that has been issued for the needs of PLWHA patients. After reporting via SIHA, the ARV drugs are stored according to the conditions that have been determined by storing them at room temperature ranging from 20-25ºC with the FEFO (First Expred First Out) system.

Data collection in this research was carried out at CAMPUREJO PRIMARY HEALTH CARE CENTERS, BALOWERTI PRIMARY HEALTH CARE CENTERS and PESANTREN 1

PRIMARY HEALTH CARE CENTERS not only sourced from secondary data and patient demographic data but also through interview sessions with pharmacists who were responsible for each primary health care centers so that the data obtained and processed had

gone through appropriate selection. strict and minimize errors in recording and calculating ATC/DDD for ARV drugs.

CONCLUSIONS

Based on the results of research conducted primary health care centers at Kediri especially CAMPUREJO PRIMARY HEALTH CARE CENTERS, BALOWERTI PRIMARY HEALTH CARE CENTERS and PESANTREN 1 PRIMARY HEALTH CARE CENTERS on the pattern of ARV drug consumption among PLWHA patients in 2021, it can be concluded that:

1. Based on the drugs available primary health care centers at Kediri city, including 3TC (Lamivudine) 150 mg, TDF (Tenofovir) 300mg, EFV (Efavirenz) 600mg, NVP (Nevirapine) 200mg, AZT (Zidovudine) 300mg, DTG (Dolutegravir) 50 mg.
2. Based on the ATC/DDD method, the antiretrovirals that are frequently used and rarely used in therapy are as follows:

a) Campurejo Primary Health Care Centers with ARV 3TC (Lamivudine) 150 mg as much as 0.76/1000KPRJ/Day (31.71%) and DTG (Dolutregravir) 50 mg as much as 6.22/1000KPRJ/Day (0.03%) in 2021.

b) Balowerti Primary Health Care Centers with the ARV drug AZT (Zidovudine) 300 mg as much as 4.62/1000KPRJ/Day (29.02%) and DTG (Dolutregravir) 50 mg as much as 0.00020/1000KPRJ/Day (0.2%) in 2021.

c) Pesantren 1 Primary Health Care Centers with ARV NVP (Nevirapine) 200 mg as much as 17.84/1000KPRJ/Day (32.62) and DTG (Dolutregravir) 50 mg as much as 0.00083/1000KPRJ/Day (0.2%) in 2021.

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