

A CONFORMITY ANALYSIS OF THE USE OF ANTIRETROVIRAL (ARV) DRUGS IN HIV/AIDS PATIENTS WITH NATIONAL GUIDELINES IN HOSPITALS X YEAR 2022 – 2023

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ABSTRACT

HIV/AIDS treatment using Antiretroviral (ARV) therapy aims to prevent HIV-related morbidity and mortality. ARV treatment must be carried out according to applicable national guidelines so that optimal therapeutic success can be achieved. The purpose of this study was to provide an overview of the conformity of ARV drug use in HIV/AIDS patients with the National Guidelines for Medical Services for HIV Management at Hospital X in 2022 – 2023. This study was a descriptive study with a retrospective data collection method by looking at the medical records of HIV/AIDS patients at Hospital X in 2022 – 2023. The research sample consisted of 57 patients using a total sampling technique. Data analysis used univariate analysis. The results of the study of 57 HIV/AIDS patients at Hospital X were dominated by male patients with 35 patients (61.4%). The most dominant age group was the 30 – 39 year old age group with a total of 18 patients (31.6%). The most widely used drug combination was a combination of Tenofovir + Lamivudine + Efavirenz with 33 patients (57.9%). The dose of the drug used was once a day as much as one tablet. Most patients had an advanced clinical stage, stage IV with 24 patients (42.1%). From the 57 medical record data obtained, the results showed that there was a conformity of the use of ARV drugs with the National Guidelines for Medical Services for HIV Management. This study showed that all HIV/AIDS patients who received ARV therapy at Hospital X in 2022 – 2023 were in accordance with the National Guidelines for Medical Services for HIV Management.

Keywords: antiretroviral., conformity of drug use., HIV/AIDS., hospital., national guideline

INTRODUCTION

Since the first identification of the Human Immunodeficiency Virus (HIV) in 1981, the epidemic of Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) has evolved into a global issue, including in Indonesia, where it remains unresolved and requires significant attention. Following the outbreak of the epidemic, responses such as fear, rejection, stigma, and discrimination have persisted. HIV/AIDS is not merely a medical phenomenon but has also developed into a societal issue. In Indonesia, the first reported case of HIV/AIDS was documented in Bali in 1987. Globally, AIDS is currently ranked as the fourth leading cause of death. As of 2013, over 5,700 new HIV infections were recorded daily worldwide.¹

According to data from the United Nations Programme on HIV and AIDS (UNAIDS), reveals that in 2019, approximately 38 million people globally were living with HIV. Among this population, 36.2 million were adults, and 1.8 million were children aged 0 to 14 years. In the same year, there were 1.7 million new cases of HIV infection and 690,000 deaths related to <http://ojs.unud.ac.id/index.php/eum>
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AIDS reported worldwide.² HIV/AIDS continues to pose a significant public health challenge in Indonesia. Based on data from Indonesia's Ministry of Health in 2019, a cumulative total of 377,564 HIV cases were recorded in the country between 2005 and 2019.³ The five provinces with the highest HIV prevalence in Indonesia are DKI Jakarta (65,578 cases), East Java (57,176), West Java (40,215), Papua (36,382), and Central Java (33,322). Similarly, the provinces with the highest prevalence of AIDS are Papua (23,599 cases), East Java (20,787), Central Java (11,724), DKI Jakarta (10,517), and Bali (8,230).¹

Pharmacological therapy is available to enhance antibody levels for people living with HIV. This therapy, known as antiretroviral therapy (ART) or simply ARV, aims primarily to suppress the HIV viral load, thereby slowing or halting the progression of the virus. Adherence to ARV medication at a high level is crucial for maximizing treatment success and preventing the development of drug resistance. To achieve an 85% suppression of the viral load, adherence to medication must range between 90–95%. This requires HIV patients to take their medication approximately 60 times per month, with no more than

three missed doses within that period. Non-adherence to ARV therapy can result in drug resistance, rendering the medication ineffective or leading to treatment failure.⁴

Antiretroviral (ARV) is typically administered as a combination of medications. This combination forms the foundation of ARV for individuals living with HIV/AIDS, as it effectively reduces the risk of drug resistance and inhibits HIV replication. By doing so, it helps prevent transmission, opportunistic infections, and other complications while improving the quality of life of those affected. Early initiation of ARV is crucial in protecting the immune system from the damage caused by HIV.

One of the challenges associated with antiretroviral therapy is the occurrence of adverse drug reactions (ADRs), which are harmful and unintended effects at therapeutic doses. Common ADRs such as nausea, rash, abdominal pain, hyperlactatemia, lactic acidosis, lipodystrophy, hyperlipidemia, anemia, and neutropenia are frequently observed after using antiretroviral medications. According to a research by Nuzzilah et al. found that individuals with AIDS frequently experience side effects such as reduced appetite (90%), headaches (80%), insomnia (80%), and nausea (70%).⁵

Antiretroviral therapy must be administered by the national guidelines and applicable standards to achieve optimal therapeutic outcomes. Continuous evaluation of ART adherence aims to ensure the selection of medications that are appropriate, effective, and safe. The purpose of this study was to assess the conformity of ARV drug used in HIV/AIDS patients with the National Guidelines at Hospital X during 2022–2023. This report were based on variables including gender, age, pregnancy status, type of medication, dosage, and clinical stage of HIV.

LITERATURE REVIEW

HIV/AIDS Treatment

Although no cure currently exists to eradicate the virus causing AIDS, treatments designed to enhance the quality of life of patients have long been available. These treatments primarily involve the administration of combination ARV. ART is an essential component of HIV/AIDS management, aiming to reduce the risk of HIV transmission, inhibit the progression of opportunistic infections, lower the viral load, and improve the overall quality of life for individuals living with HIV.⁶

ART has demonstrated promising success rates, as the life expectancy of HIV patients has significantly improved since its introduction.⁷ The World Health Organization (WHO) recommends using combination ART, which consists of three or more ARV drugs. Access to healthcare services has increased due to coordinated international efforts to combat HIV. In 2018, lifelong ART was provided to 62% of adults and 54% of children in low- and middle-income countries. By mid-2019, 182 countries had adopted these recommendations, encompassing 99% of the global population living with HIV.⁸

Review of HIV/AIDS Treatment in Indonesia

In Indonesia, HIV/AIDS services, including the provision of ARV, are offered free of charge by the government through designated referral hospitals. ART aims to suppress the

progression of HIV within the body. In 2016, 41,250 new HIV cases were reported, with an additional 10,376 cases documented by March 2017. Cumulatively, 242,699 individuals infected with HIV had been identified as of March 2017.⁹

The available services include 3,450 HIV counseling and testing (KTHIV) facilities, 705 care, support, and treatment (CST) centers actively administering ART, 90 methadone maintenance therapy (MMT) services, 1,689 sexually transmitted infection (STI) clinics, and 252 prevention of mother-to-child transmission (PMTCT) services. To enhance access to services for people living with HIV, the Ministry of Health has implemented the Comprehensive and Sustainable Service (Layanan Komprehensif Berkesinambungan, LKB) system. LKB is an integrated service framework that incorporates all levels of healthcare primary, secondary, and tertiary along with support from other sectors relevant to the needs of PLHIV, including community engagement. The primary objective of LKB is to strengthen the healthcare system and ensure the availability of comprehensive and sustainable services.⁹

MATERIALS AND METHODS

This study was a descriptive investigation aimed at evaluating the conformity of ARV drug used in HIV/AIDS patients at Hospital X during 2022–2023. The study was carried out at Hospital X from January to July 2024. Using the consecutive sampling technique, the study included the medical records of patients who met the inclusion criteria until the required sample size was attained.

The study sample comprised an accessible population that met the inclusion criteria and did not meet the exclusion criteria, totaling 57 patients. The inclusion criteria consisted of all HIV/AIDS patients at Hospital X from 2022 to 2023 with complete medical records, including data on gender, age, pregnancy status, medication type, dosage, and clinical stage of HIV/AIDS. Conversely, the exclusion criteria encompassed incomplete or inaccessible medical records of HIV/AIDS patients at Hospital X during the same period. The collected data were analyzed using Microsoft Excel. The analysis included univariate analysis, aimed at explaining and describing each study variable gender, age, pregnancy status, medication type, dosage, and clinical stage of HIV/AIDS patients based on the medical records from Hospital X for the 2022–2023 period.

RESULTS

This study was conducted from January to July 2024 at Hospital X. The data utilized were secondary data obtained from the medical records of Hospital X. The study subjects consisted of 57 patients who met the inclusion criteria. The analysis employed in this study was univariate analysis, focusing on patient characteristics such as gender, age, pregnancy status, medication type, dosage, and clinical stage of HIV/AIDS.

Overview of ARV Use in HIV/AIDS Patients

Based on Table 1, it can be observed that the majority of HIV/AIDS patients at Hospital X were male, with 35 patients (61.4%), while female patients account for 22 patients (38.6%).

Among the 22 female patients, 2 (9%) were pregnant, and 20 (91%) were not pregnant.

The study results indicate that the most dominant age group among HIV/AIDS patients at Hospital X was 30–39 years, with 18 patients (31.6%). This was followed by the 40–49 years age group, with 15 patients (26.3%), the 20–29 years age group with 12 patients (21%), the 50–59 years age group with 5 patients (8.8%), the 60–69 years age group with 4 patients (7%), and finally, the 70–79 years age group with 3 patients (5.3%).

Regarding the types of medications used, the study found that most of HIV/AIDS patients at Hospital X were prescribed the combination of Tenofovir+Lamivudine+Efavirenz, with 33 patients (57.9%). Meanwhile, 24 patients (42.1%) were using the TLD combination (Tenofovir + Lamivudine + Dolutegravir). This study also showed that all patients (100%) take their medication once daily.

In terms of clinical stage, the findings show that the majority of HIV/AIDS patients at Hospital X were in clinical stage IV, with 24 patients (42.1%).

Table 1. Overview of ARV Use in HIV/AIDS Patients by Gender, Age Group, Medication Type, and Clinical Stage of HIV at Hospital X

Research Variable	Frequency	Percentage (%)
Gender		
Men	35	61,4
Woman	22	38,6
Total	57	100
Age group		
20 – 29 years	12	21
30 – 39 years	18	31,6
40 – 49 years	15	26,3
50 – 59 years	5	8,8
60 – 69 years	4	7
70 – 79 Tahun	3	5,3
Total	57	100
Type of drug		
TLE (TDF+3TC+EFV)	33	57,9
TLD (TDF+3TC+DTG)	24	42,1
Total	57	100
Clinical stages of HIV		
Stage I	23	40,4
Stage II	6	10,5
Stage III	4	7
Stage IV	24	42,1
Total	57	100

DISCUSSIONS

The study on the appropriateness of ARV drug used in HIV/AIDS patients at Hospital X revealed several key findings. Among the total of 57 patients, the majority were male, with 35 patients (61.4%), followed by female patients, who accounted for 22 patients (38.6%). This result aligned with a previous study <http://ojs.unud.ac.id/index.php/eum> doi:10.24843.MU.2025.V14.i4.P04

conducted at RSUD dr. Iskak Tulungagung in 2022, found that male HIV/AIDS patients comprised a higher proportion (69.5%) compared to female patients (30.5%).¹⁰ This finding was consistent with data from the Indonesian Health Profile (2017), which reported that 63.6% of individuals living with HIV are male, and 36.4% are female, while 68.0% of AIDS cases are

among males and 31.9% are among females.⁹ This further emphasizes that the majority of HIV/AIDS patients are male.¹⁰ The high proportion of males infected with HIV/AIDS was believed to be due to the higher involvement of men in high-risk sexual behaviors and intravenous drug use, compared to women, who more often contract the virus through sexual partners. In addition, in terms of maintaining their health, men and women also differ from one another. Compared to men, women tend to pay more attention to their health and are more likely to seek medical treatment when needed.¹¹

In this study, regarding the pregnancy status of HIV/AIDS patients at Hospital X, it was found that out of 22 female patients, 2 (9%) were pregnant, while 20 (91%) were not pregnant. This study used a retrospective descriptive method; therefore, the data collected was incomplete, and the researcher could not obtain information regarding the pregnancy trimester of these patients. When a pregnant woman was found to be infected with HIV, ARV therapy can be initiated immediately, regardless of the CD4 cell count and pregnancy stage. ARV therapy can be given for life without interruption. Efavirenz should not be used during the first trimester of pregnancy due to its teratogenic properties, which can cause congenital defects in the fetus. However, Efavirenz can be used as an alternative based on data from the National Institute of Health.¹²

Consequently, ARV therapy in pregnant women in the first trimester who were initially using Efavirenz should be switched to Nevirapine or Lopinavir. A meta-analysis conducted by Nathan Ford et al. found that the use of Efavirenz in the first trimester of pregnancy led to 44 congenital abnormalities in 1.63% of the live-born infants in 2023.¹³ The use of ARV therapy in pregnant women with HIV has proven effective in suppressing viral load and preventing the transmission of HIV from mother to child.¹⁴ This is because HIV can be transmitted during pregnancy through placental transmission, during childbirth, and through breastfeeding. Of the mothers receiving ARV therapy, 95% had an undetectable viral load at the time of delivery, with 98% of the infants born without HIV infection. Adherence to ARV medication by pregnant women is crucial to reduce viral activity in the body, improve the health condition of the mother, and decrease the risk of HIV transmission from mother to child.¹⁵

The data in Table 1 regarding the age of HIV/AIDS patients at Hospital X showed that the most dominant age group was 30–39 years, with 18 patients (31.6%). This was followed by the 40–49 years age group with 15 patients (26.3%), the 20–29 years age group with 12 patients (21%), the 50–59 years age group with 5 patients (8.8%), the 60–69 years age group with 4 patients (7%), and finally, the 70–79 years age group with 3 patients (5.3%). These findings were aligned with a study conducted at RSUD Dr. H. Abdul Moeloek in Lampung Province in 2019, which found that the most dominant age group for HIV/AIDS patients was 31–40 years, comprising 47% (92 individuals).¹⁶ The majority of HIV/AIDS cases occurred during the productive age range, as this period is typically associated with increased sexual activity and substance abuse, both of which are significant risk factors for the transmission of HIV/AIDS.¹⁰

The data in Table 1 regarding the types of medications used by HIV/AIDS patients at Hospital X showed that the most common combination used was Tenofovir + Lamivudine + Efavirenz, with 33 patients (57.9%). Meanwhile, 24 patients (42.1%) used the TLD combination (Tenofovir + Lamivudine + Dolutegravir). These findings aligned with a study by Esti *et al.* (2022) at RSUD Dr. Iskak Tulungagung, which reported that the most commonly used ARV drug combination was Tenofovir + Lamivudine + Efavirenz (82.6%). This combination is the first-line choice for HIV/AIDS patients. The use of the Tenofovir + Lamivudine + Efavirenz combination in this study was due to its status as first-line antiretroviral therapy and in accordance with recommendations from both the WHO and the National Guidelines for the Management of HIV, which state that the first-line ARV regimen consists of a fixed-dose combination of two NRTIs and one NNRTI. The advantage of FDC medications is that they reduce the risk of side effects and can be taken once a day, ensuring patient comfort and improving adherence to treatment.¹⁰

Based on the study results, the dosage of medication consumed by HIV/AIDS patients at Hospital X was once daily, with 57 patients (100%) adhering to this regimen. This aligned with the national ARV treatment guidelines from 2011, which specify that the most commonly used dosage is the combination of Tenofovir (300 mg) + Lamivudine (300 mg) + Efavirenz (600 mg). This is the standard adult dose taken once daily as a single tablet.¹⁷

Data from Table 1 related to the clinical stage of HIV/AIDS patients at Hospital X showed that the majority of patients were in advanced clinical stages, with stage IV comprising 24 patients (42.1%). This finding was aligned with a research by Widiyanti *et al.* (2016), which reported that the most common clinical stage for HIV/AIDS patients was the advanced stage, with 38 patients.¹⁸ This suggests that patients starting therapy at an advanced clinical stage were often already experiencing severe opportunistic infections. This was because during the early stage of HIV infection, individuals experience acute symptoms similar to those of the common flu, followed by an asymptomatic phase that lasts for about ten years. The initial nonspecific symptoms lead patients to overlook the high risk of infection and seek medical care only after experiencing several signs of immunodeficiency.¹⁹

Another reason for patients starting therapy at an advanced clinical stage includes delayed diagnosis and the social stigma and discrimination that cause patients to hide their condition and avoid from seeking treatment. This delay in seeking care contributes to the high number of patients presenting at clinical stage IV, as they often only visit healthcare facilities when their condition has significantly worsened.²⁰

The analysis of the conformity of ARV drug used in HIV/AIDS patients at Hospital X for the years 2022 – 2023 was conducted by examining the types of medications used and the clinical stages of the patients in relation to the National Guidelines for HIV Medical Treatment. The data regarding the types of ARV medications used by HIV/AIDS patients at Hospital X shows that the most common combination was Tenofovir + Lamivudine +

Efavirenz, with 33 patients (57.9%). This reflects the conformity to the guidelines, as the combination of Tenofovir + Lamivudine + Efavirenz is the first-line antiretroviral therapy recommended by the WHO and the National Guidelines for HIV Treatment, administered as a fixed-dose combination (FDC).

In addition, the study also found a combination of Tenofovir + Lamivudine + Dolutegravir used by 24 patients (42.1%). Dolutegravir (DTG), in combination with NRTIs, is currently recommended as a first-line regimen for patients initiating ARV therapy. Moreover, Dolutegravir is recommended as an alternative for patients who have failed previous treatments involving non-Dolutegravir-based therapies. Research has shown that the combination of Dolutegravir with 2 NRTIs as a first-line therapy is more effective at reducing viral load and lowering the risk of drug interactions, therapy discontinuation, and resistance compared to regimens that previously used Efavirenz. This also reflects conformity to the guidelines, as the combination of Tenofovir + Lamivudine + Dolutegravir is also a first-line antiretroviral therapy that aligns with the recommendations from the WHO and the National Formulary 2023.²¹

Regarding the conformity of ARV medication use based on the clinical stages of the patients, the results demonstrate that all HIV/AIDS patients at Hospital X in 2022 – 2023 received therapy in accordance with the national guidelines and applicable standards. The therapies administered to these patients included the combinations of Tenofovir + Lamivudine + Efavirenz and Tenofovir + Lamivudine + Dolutegravir, both of which are first-line antiretroviral regimens in line with the National Guidelines for HIV Medical Treatment, WHO recommendations, and the National Formulary 2023.

A limitation of this study was its reliance on secondary data in the form of medical records, which means the quality and completeness of the data depend on the original source. For example, the researcher could not obtain information regarding the pregnancy trimester of female patients, which led to ambiguity in the analysis of the appropriateness of ARV medication use in pregnant patients at Hospital X during 2022 – 2023.

1. SUMMARY AND RECOMMENDATIONS

From the 57 medical records obtained, it was found that all HIV/AIDS patients who received ARV therapy at Hospital X in 2022 – 2023 had shown that the use of ARV drugs was in conformity with the ARV medication guidelines outlined in the National Guidelines. For future researchers, it is recommended to investigate a larger and more diverse sample to provide more specific and comprehensive findings.

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