

Quality of live of HIV / AIDS Patients for Loss to Follow Up Antiretroviral Therapy in Semarang, Indonesia

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Abstract

Introduction: Loss to Follow up (LTFU) Antiretroviral (ARV) therapy of HIV and AIDS will have an impact on their quality of life indicated by a decrease in CD4 cell counts.

Objective: The purpose of the study was to explore the quality of HIV and AIDS patients who were Loss to Follow up ARV therapy.

Methods: A retrospective cohort study design on 140 HIV/AIDS patients receiving ARV regimen therapy was recorded in the PDP service in Semarang City in the period of January 2015 – Oktober 2019, aged 18-65 years old, the sample consisted of two groups of Loss to Follow Up and retention group. Statistical analysis using survival analysis with cox regression 95% confidence interval.

Result: The result showed that the Loss to Follow Up patient with ARV therapy showed a risk to the quality of life (HR, 1.85; 95% CI, 1.110-3.098), a decrease in the quality of life of patient group Loss to Follow Up occurred at 48th months.

Conclusion: Loss to Follow Up ARV therapy will decrease the quality of patients with HIV/AIDS (ODHA), therefore it is necessary to improve counseling to commit the consistency in therapy.

Keywords: *Loss to Follow up, ARV Therapy, Quality of Life, CD4*

Introduction

Epidemiological studies show that the prevalence of diseases by the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) of the world is increasing, until the end of 2017, around 36.9 million people and 35.1 million people of them were adults and 940,000 people died. From these data,

21.7 million people received antiretroviral treatment and 59% of people living with HIV received antiretroviral treatment.^(1,2) Reports of HIV / AIDS cases in Indonesia, there were 291,129 cases, with the percentage of deaths 0.28%. Based on cumulative numbers up to January 2019, the highest number was in Papua (22,538), East Java (19,829), DKI Jakarta (9,932) Central Java (10,111) and West Java (6,749).⁽³⁾

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Efforts to improve the survival of people living with HIV / AIDS (PLWHA), one of which is through special treatment and therapy, namely the use of a combination of antiretroviral drugs (ARV).^(1,4,5) Although it has not been able to cure HIV completely and add challenges in terms of side effect and chronic drug resistance, ARV therapy has dramatically reduced mortality and

morbidity, improved the quality of life of PLWHA and raised community expectations, so that HIV and AIDS have been accepted as a disease that can be controlled and is no longer considered as a frightening disease.⁽⁶⁾ Benchmark of quality life or health status of PLWHA are the numbers of Clusters of differentiation 4 (CD4), besides that CD4 is also used as a monitor for ARV therapy response ARV.^(3,6-8)

Antiretroviral treatment (ARV) requires HIV/AIDS patients to be more consistent in taking medication for a lifetime, so it takes a high commitment from PLWHA to survive longer.⁽⁹⁻¹¹⁾ This has led to an increase in the discovery of cases of Loss to follow-up (LTFU), based on the HIV and AIDS Information System of the Indonesian Ministry of Health until September 2017 it was found data of LTFU 43,707 (22%), for Central Java from 2005 to August 2018 data Loss to Follow up: 3.227 people (23%).⁽³⁾

Research in Zambia and Switzerland on observations of three and a half years of therapy showed an LTFU percentage of 29.3% in patients starting ART with a CD4 count <100 cells/ml and 15.4% for patients starting with ≥ 350 cells/ mL.⁽¹²⁾ Several studies have shown a low CD4 cell count (<100-200 cell/ml) increases the risk of LTFU.^(10,13,14) It is different from a study in Ethiopia stating the use of AZT increases the risk of LTFU by three times compared to d4T regimen.⁽¹⁵⁾ PLWHA who received substitution of ARV regimen during the treatment period were at greater risk of LTFU (HR 5,2; 95% CI 3,6-7,3) similar to studies in India which reported that substitution could be a risk factor for failure of ART.⁽¹⁶⁾ The majority of cases of substitution regimens are caused by drug reactions, patients may become concerned about side effects and the effectiveness of new drugs given so they choose to look for other treatment options. The fear of side effect is the main cause of failure of LTFU.^(17,18)

The prevalence of LTFU in Indonesia is according to reports from the Ministry of Health of September

2017 which was 22,89% (43.707 people out of 190.980 people received ART. Whereas the prevalence of LTFU in Central Java up to 23% (3.227 people out of 5.926 people who were actively consuming ART drugs and in the city of Semarang, the prevalence of LTFU was 31%, almost 50% of LTFU patients were identified died.^(3,19) The study of LTFU assessment and survival in Indonesia is still limited, thus it need further research related the quality of life of PLWHA with Loss to Follow up using survival analysis method to see when a low quality of life (event) with CD4 parameters stated in the Hazard Ratio (HR).

Method

This research was conducted with a retrospective cohort design approach and survival analysis for events. Cohort studies are non-experimental analytic epidemiologic studies that examine the relationship between risk factors and effects or disease. In this research, the risk factors/causes were HIV / AIDS (PLWHA) patients who were LTFU on ARV treatment, while the effect/event was the low quality of life indicated by CD4 count <350 cells/m³. The population of the research was patients of HIV/AIDS who received ARV regimen therapy in PDP services in the city of Semarang in the period of January 2015 – Oktober 2019 and aged 18-65, the total size of the study sample was 140 patients. Statistical analysis used survival analysis with cox regression (Cox Proportional Hazard Model) 95% confidence interval.

Results

The total number of HIV/AIDS patients (PLWHA) receiving regimen therapy of ARV was recorded in the Care, Service, and Treatment (CST) Service in Semarang City of 216 people. Based on the retrospective cohort study period of January 2015 – October 2019, From 216 patients, 140 patients meet the criteria for a sample consisting, shown in table 1.

Table 1. The Baseline of Sociodemographic Characteristics Loss to Follow Up (LTFU) and Retention Patient of HIV / AIDS with ARV Therapy in Semarang

Variable	Loss to Follow Up				Event		Log Rank
	Yes		No		(CD4 < 350)		(p-value)
	n	(%)	n	(%)	N	(%)	
Gender							
Male	33	47	45	64	42	67	0,28
Female	37	53	25	36	21	33	
Age							
15 – 25	9	13	13	19	7	11	0,716
26 – 35	25	36	30	43	26	41	
36 – 45	21	30	20	29	20	32	
> 45	15	21	7	10	10	16	
Education							
Primary School	10	14	14	20	7	11	0,423
Junior High School	12	17	11	16	11	17	
Senior/vocational High School	35	50	34	49	34	54	
Tertiary School	13	19	11	16	11	17	
Job							
Unemployment	18	26	23	33	15	24	0,499
Employed	52	74	47	67	48	76	
Marital Status							
Not Married	33	47	38	54	35	56	0,641
Married	37	53	32	46	28	44	
Supervisory Drink Drug (SDG)							
Yes	13	19	26	37	18	29	0,644
No	57	81	44	63	45	71	
Comorbid							
No	35	50	32	46	23	37	0,222
Yes	35	50	38	54	40	63	
Quality of Life							
Retention					37	59	0,025
LTFU					26	41	

* The Log-rank test (Mantel Cox) was used for all other characteristics

LTFU, Loss to Follow Up;

Male gender tends to experience a low quality of life (67%), this can be caused by Loss to Follow Up in committing ARV therapy (64%). Many of them are 26 – 35 years old experience Loss to Follow Up (43%) in antiretroviral therapy and they have CD4 <350 cells / m³ (41%). Patients with working status (67%) which ultimately tend to have a low quality of life (76%). Patients with married status are retention, meanwhile not married patients are LTFU (54%) therefore many

of them have low quality of life (56%). Supervisory Drink Drug (SDG) have an important role for patients' compliance to do therapy, the result of the research showed that patients with no SDG experience LTFU (63%) and have a low quality of life or CD4 count <350 cell/m³ (71%).

The final model of the analysis results with *cox regression (Cox Proportional Hazard Model)* can be seen in table 2.

Table 2. Results of the Cox Regression Analysis for overall survival

No	Variable	Cox Regression		
		HR	p-value*	95% CI
1	LTFU	1,854	0,018	1,110 - 3,098

LTFU, Loss to Follow Up; HR, hazard ratio; CI, confidence interval

* The cox regression (Cox Proportional Hazard Model)

Pasien Loss to Follow Up with ARV therapy showed a risk to the quality of life (HR, 1.85; 95% CI, 1.110-3.098). Each patient has a different distribution of life length or different quality of life. Out of 140 patients observed, it showed that patients who had a low quality of life were marked as having CD4 <350 cell/m³ (*event*) of 45%, while those who had a good quality life (*sensor*) of 55%. Median survival or time of decreasing quality of life at month 45.

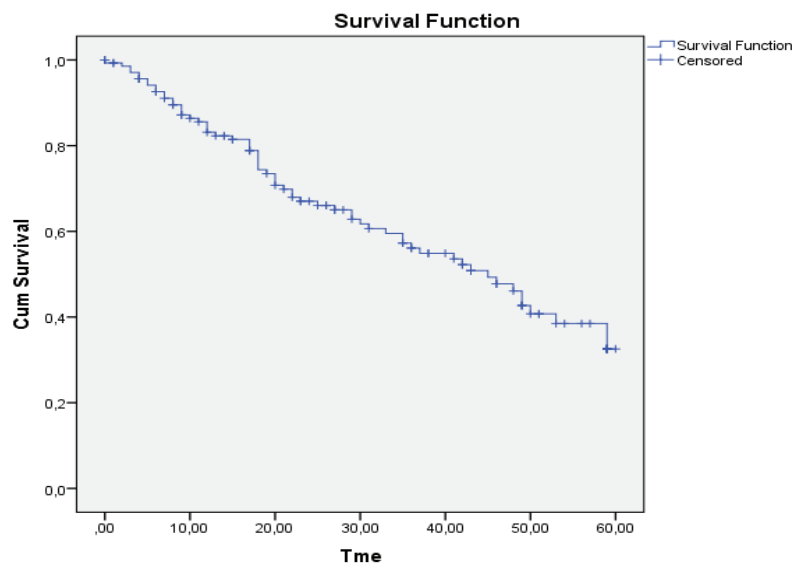


Figure 1. Probability Curve of Quality of Life for PLWHA

Median survival during the study period for the retention group experienced a decrease in quality of life at 39th months while the group Loss to Follow Up occurred at 48th months.

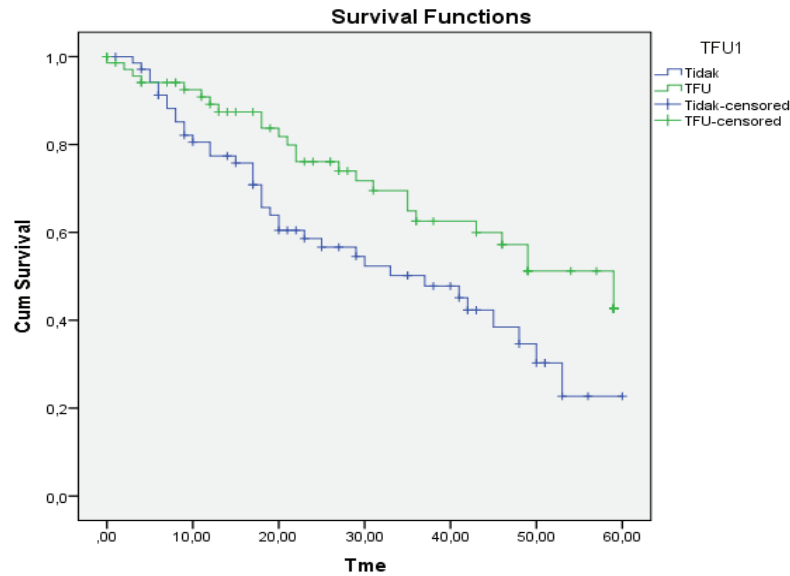


Figure 2. Probability Curve of Quality of Life for PLWHA Retention and Loss to Follow Up Group

Discussion

This research proves that Loss to Follow Up ARV therapy is at risk to CD4 (HR, 1.85; 95% CI, 1.110-3.098, p=0,018), and time off and time of decreasing quality of life is at 45th months. This research is in line with several studies in Zambia and Switzerland on observation of three and a half years of therapy showed an LTFU percentage of 29,3% in patients starting ART with a count of CD4 < 100 cell/ml and 15,4% for patients who starts with ≥ 350 cell/mL.⁽¹²⁾ Several studies have shown a low CD4 (<100-200 cell/ml) increases the risk of LTFU.^(13,20) CD4 gain at six months of treatment were both associated with retention.⁽²¹⁾

The Standard of antiretroviral therapy (ART) consists of a combination of the antiretroviral drug (ARV) to suppress HIV and stop the progression of HIV disease. Antiretroviral Therapy (ARV) require HIV/AIDS sufferers to be more consistent in taking medication for life, so it takes a high commitment from PLWHA to survive longer.^(7-11,22)

The results of this study indicate the reasons for LTFU patients related antiretroviral therapy are influenced by multy factors, this is also supported by their predisposing factors.⁽²³⁾ This was shown by patients whose LTFU turned out to have a CD4 cell count > 350 cells / mm³ more than retention patients, so they felt healthy and finally did not want any more ARV

therapy. However, in the 48 month, the study showed that LTFU patients experienced a decrease in quality of life indicated by a decrease in CD4 count <350 cells / mm³.

This research showed that loss to follow-up in the long term will give a negative impact on patients, namely a decrease in quality of life. That is because patients who are lost to follow-up do not get appropriate treatment for HIV and AIDS cases, the provision of ARV drugs and their clinical status, cannot be monitored. Estimates of the mortality rate are higher in patients with a follow-up of reaching 47.1% per year.⁽²⁴⁾ A Loss to Follow Up also resulted in serious consequences, such as treatment interruption, drug toxicity, treatment failure due to non-compliance, and drug resistance.⁷ Detectable p24 antigen concentration unlike viral load, no correlation found between p24 antigen concentration with ART status and length of therapy.⁽²⁵⁾

Conclusion

Loss to Follow Up ARV therapy will decrease the quality of patients with HIV/AIDS (PLWHA), therefore it is necessary to improve counseling to commit the consistency in therapy.

Conflict of Interest : NIL

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