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THE STATUS OF ADHERENCE IN LAMIVUDIN, TENOFOVIR AND DOLUTEGRAVIR USAGE TO TREAT HIV PATIENTS

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ABSTRACT

Objective: To analyze the adherence to treatment with Lamivudin, Tenofovir, Dolutegravir in HIV patients at Long An General Hospital.

Subjects and methods: Study of cross-sectional description, no intervention through retrospective medical records and interviews with questionnaires on 71 HIV/AIDS patients being treated with a 3-drug ARV regime of Lamivudin, Tenofovir, Dolutegravir including inpatient and outpatient treatment at the Department of Infectious Diseases, Long An General Hospital.

Results: The rate of adherence to ARV of study participants within 7 days before the time of interview was 63.4%. In which, 11.3% of patients missed at least one dose of the drug; 22.5% of patients took the medicine at the wrong time over 1 hour at least once; 5.6% of patients took ARV drugs incorrectly at least once. The study results showed that the relevant factors for ARV adherence were the patient's age, the clinical stage before treatment and the home reminder method.

Conclusion: The rate of adherence to treatment of ARV in study participants within 7 days before the time of interview was 63.4%. Relevant factors for adherence to treatment of ARV were patient age, pre-treatment clinical stage, and home reminders.

Keywords: HIV, adherence to ARV treatment.

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1. INTRODUCTION

HIV infection is considered a pandemic by World Health Organization (WHO). Subjective attitudes towards HIV increase the risk of infection. In Vietnam, there has never been a disease that has spread widely and lasted as long as the HIV/AIDS epidemic. According to the report as of September 30, 2017, there were 208,371 people living with HIV in the country. Of which, 90,493 AIDS patients are still alive and 91,840 people have died from AIDS. Among reported HIV infections, only about 80% of cases are trackable and manageable [1]. To combat HIV replication and prolong life, the only treatment currently available is antiretroviral drugs (ARVs). Treatment adherence is the primary concern in the use of ARV drugs for HIV treatment. Therefore, we conducted this study with the aim of to analyzing the adherence to treatment with Lamivudin, Tenofovir, Dolutegravir in HIV patients at Long An General Hospital.

2. RESEARCH SUBJECTS AND METHODS

2.1. Patient population

71 HIV/AIDS patients are being treated with triple ARV regimen (Lamivudin 300mg, Tenofovir 300mg, Dolutegravir 50mg); inpatient and outpatient treatment at Department of Infectious Diseases, Long An General Hospital.

**** Inclusion criteria***

- All HIV patients are treated at Long An General Hospital from October 1, 2021 to December 31, 2021.

- Patients receiving triple ARV regimen (Lamivudin 300mg, Tenofovir 300mg, Dolutegravir 50mg) for at least 6 months.

- Patient and their family members agreed to participate in the study.

**** Exclusion criteria***

+ Incompetent patients.

+ Patients participating in a clinical trial for another drug.

2.2. Research methods

Study design: Descriptive cross-sectional study

Research variables:

- Patient characteristics that may be related to treatment adherence

- Adherence to ART treatment and related-factors .

2.3. Statistical analysis: Data were entered and analyzed using IBM SPSS Statistics 22.0

3. RESULTS

Table 1. Acriptega treatment characteristics of study subjects

Characteristics	Number of patients (n=71)	Percentage (%)
Treatment regimen		
TDF + 3TC + DTG	71	100,0
Time on ARV treatment: Median (IQR): 31,2 (20,2; 53,1) montths; Shortest: 11 montths; Longest: 96 montths.		
Clinical stage when starting ARV treatment		
Stage 1	17	23.9
Stage 2	26	36.6
Stage 3	24	33.8
Stage 4	4	5.6
CD4 count before treatment		
≤ 200 cells/mm^3	11	15.5
> 200 cells/mm^3	60	84.5

Median (IQR) duration of Acriptega treatment was 31.2 (20.2; 53.1) months. Most patients started ART when they were in clinical stage 2 (36.6%) and clinical stage 3 (33.8%). 15.5% of patients started ART when the CD4 count was less than 200 cells/mm^3.

Table 2. Adherence to antiretroviral therapy

Characteristics		Number of patients (n=71)	Percentage (%)
Missed doses in past week	0	63	88.7
	1	7	9.9
	2	1	1.4
Doses after >1 hour of the correct time in past week	0	55	77.5
	1	10	14.1
	2	4	5.6
	≥ 3	2	2.8
Taking medication improperly in past week	0	67	94.4
	1	3	4.2
	2	1	1.4
Adherence rate		45	63.4

Among the three measures of medication adherence, the percentage of patients taking medication properly and without missed dose were quite high, accounting for 88.7% and 94.4%, respectively. Only 77.5% of patients take their medication on time. Overall assessment of medication adherence, only 63.4% of patients met the requirements.

Table 3. Relationship between demographic characteristics and adherence

Variables		Adherence		OR (95% CI)	p
		No	Yes		
Gender	Male	19	28	0.81 (0.41 – 1..92)	0.321
	Female	8	16		
Education level	< high school	12	19	1.43 (0.72 -2.67)	0.233
	≥ high school	13	27		
Marital status	Single, divorced, widowed	13	17	1.40 (0.66 – 2.12)	0.566
	Live with spouse	14	26		
Working far from home	Yes	5	11	0.85 (0.38 – 1.96)	0.501
	No	22	33		
Income	≤ 1.390.000	14	19	1.35 (0.74 – 2.08)	0.673
	> 1.390.000	12	24		
Age	+ 1 year	21	50	1.09 (1.003 – 1.132)	0.033

No statistically significant relationship was found between adherence to treatment with factors such as gender, marital status, average income, working far from home ($p>0.05$). Results show that medication adherence increased with age ($p=0.033$).

Table 4. Relationship between treatment characteristics and adherence

Variables		Adherence		OR (95% CI)	p
		No	Yes		
Time on ARV treatment	≤ 24 months	13	17	1.52 (0.89 – 2.12)	0.344
	> 24 months	15	26		
Clinical stage when starting treatment	Stage 1 and 2	11	32	0.34 (0.15 – 0.78)	0.022
	Stage 3 and 4	15	13		
CD4 count before treatment (cells/mm^3)	> 200	4	7	0.88 (0.45 – 1.89)	0.854
	≤ 200	19	41		

Patients in clinical stages 3 and 4 had lower adherence than those in clinical stages 1 and 2 (p=0.022). No statistically significant relationship was found between adherence and other factors including time on treatment and pre-treatment CD4 count (p> 0.05).

Table 5. Effects of alcohol, beer and drug use on adherence

Variables		Adherence		OR (95% CI)	p
		No	Yes		
Alcohol drinking in past week	Yes	7	12	0.78 (0.34 -1.73)	0.702
	No	20	42		
Frequency of alchohol drinking in past week	Daily	2	2	2.24 (0.55 – 5.11)	0.123
	Sometimes	6	9		
Beer drinking in past week	Yes	8	9	1.66 (0.71 – 1.88)	0.212
	No	22	32		
Frequency of beer drinking in past week	Daily	3	4	0.85 (0.28 – 3.21)	0.677
	Sometimes	5	5		
Ever used drugs	Yes	7	16	0.59 (0.28 – 1.56)	0.348
	No	19	29		

No statistically significant relationship was found between adherence and other factors including alcohol, beer drinking or drug use.

Table 6. Relationship between knowledge of ARV treatment and adherence

Variables		Adherence		OR (95% CI)	p
		No	Yes		
Knowledge of ARV treatment	Not qualified	11	22	0.72 (0.41 – 1.82)	0.301
	Qualified	14	24		

No statistically significant relationship was found between adherence and knowledge of ARV treatment.

Table 7. The influence of service and support factors related to adherence

Variables		Adherence		OR (95% CI)	p
		No	Yes		
Distance from home to clinic	> 10 km	11	16	1.45 (0.65 -3.96)	0.312
	≤ 10 km	15	29		
Waiting time for examination and taking medicine	Too long/normal	12	24	0.92 (0.44 – 3.21)	0.722
	Short	15	20		
Having supporters at home	No	3	6	0.88 (0.41 -2.51)	0.864
	Yes	24	38		
Reminder of taking medication	No	11	6	3.81 (1.12 -7.63)	0.044
	Yes	16	38		

Patients who used reminders to take medication were 3.81 times better at adherence than those who did not (p=0.044).

4. DISCUSSION

In this study, the rate of adherence to Acriptega treatment in the week immediately before the interview was 63.4%. This rate is lower than the results of studies in Hanoi in 2007 (79.5%) [2] and in Can Tho in 2010 (77%) [3]. In those two studies, 1-month adherence often provided a criterion that allowed patients to forget to take medication ≤3 times/month. Therefore, the adherence rate may be higher than our findings.

Cases of non-adherence included doses after >1 hour of the correct time in past week (22.5%), missed dose (11.3%) and taking medication improperly in past week (5.6%). The rate of not taking medication on time in this study is almost equivalent to that of Nguyen Thi

Xuyen's study in 2017 (29.5%) [4], but much lower than that of Nguyen Thi Xuyen's study in 2017 (40.5% in one month) [5].

Our results show that medication adherence increased with age (p=0.033). This may be explained by the fact that at an older age, patients have a better sense of their condition and the benefits of ART. In addition, their living habits are relatively stable, so they do not forget to take the medicine. This result is similar to the study of Cauldbeck MB et. al. in 2009 [6].

When accessing other factors such as gender, education level, marital status, working far from home and average income, we found that there were differences in the two groups of adherence and non-adherence with treatment. However, the differences were not statistically significant.

The number of patients with a CD4 cell count ≤200 cells/mm^3 was 15.5%. This rate is much lower than some previous studies. In the study by Nguyen Thi Xuyen in 2017, 33.7% of patients had CD4 count less than 200 cells/mm^3 [4]. According to study by Tran Xuan Thanh, up to 44.9% of patients had CD4 count less than 100 cells/mm^3 [7].

In the current study, patients in clinical stages 3 and 4 had lower adherence than those in clinical stages 1 and 2 (p=0.012). The reason may be that stage 3 and 4 patients were depressed with their severe illness and social stigma, so they were pessimistic about life, leading to poorer adherence to than stage 1 and 2 patients. This is the difference compared to other research by Nguyen Thi Xuyen in 2017 [4].

The rate of alcohol consumption in the past week was 26.8% of the study subjects and all were male (100%). Of which, about one-fifth drink alcohol regularly. This rate is equivalent to the study of Nguyen Thi Xuyen (30.5%) [4]. Therefore, for male patients, especially those who regularly drink alcohol, it is necessary to pay special attention and take active measures to educate patients to reduce alcohol consumption.

In addition, 32.4% of the interviewees used to be addicted to drugs. However, when asked about drug use in the past week, the subjects all answered that they did not use drugs. This rate is similar to the study of Nguyen Thi Xuyen in Bac Giang (27.4%) [4].

Regarding knowledge of ARV treatment, 85.9% of patients know that antiretroviral therapy is a lifelong treatment. 76.1% of patients know how to handle when forget to take medication. These rates are similar to studies in Bac Giang (92.6% and 91.6%, respectively) and Ninh Binh (89.3% and 82.1%, respectively) [8]. In addition, 69.0% of patients in this study knew that they had to adhere to over 95% to achieve effective treatment. This rate is also lower than that in the study by Nguyen Thi Xuyen (88.4%) [4].

This study also showed that patients who used medication reminders had 3.81 times better adherence than those who did not (p=0.044). This result is similar to the study of Hoang Huy Phuong et al in Ninh Binh (2012): patients who do not use reminders to take medication have a higher risk of non-adherence than the other patients 3.2. times (p<0.001) [8].

5. CONCLUSION

The rate of adherence to ARV of study participants within 7 days before the time

of interview was 63.4%. In which, 11.3% of patients missed at least one dose of the drug; 22.5% of patients took the medicine at the wrong time over 1 hour at least once; 5.6% of patients took ARV drugs incorrectly at least once

Factors affecting medication adherence were patient age, pre-treatment clinical stage and using medication reminders.

REFERENCES

[1] Ministry of Health, Report on HIV/AIDS prevention and control in 2017 and key tasks in 2018, 2017.

[2] Nguyen Minh Hanh, Adherence to ART and related factors in clinics and outpatients in 8 districts of Hanoi. Master's Thesis in Public Health. Medical University public economy, 2007.

[3] Vo Thi Nam, Determining the prevalence and factors related to ART adherence among HIV/AIDS patients in Can Tho City in 2009. Ministry of Health. 4th National Scientific Conference on HIV/AIDS, Hanoi, 2010.

[4] Nguyen Thi Xuyen, Survey on ARV drug use and treatment adherence of patients at HIV/AIDS outpatient clinic. Bac Giang Center for Disease Control. Pharmacist Thesis Specialization level I. Hanoi University of Pharmacy, 2017.

[5] Nguyen Thi Thu Trang, Adherence to ART and some related factors of people living with HIV/AIDS in outpatient clinics in Thanh Hoa in 2010. Master thesis in public health. College of Public Health, 2010.

[6] Cauldbeck MB, O'Connor C, O'Connor MB et al., Adherence to anti-retroviral therapy among HIV patients in Bangalore. India. AIDS Res Ther. 6(7), 2009.

[7] Tran Xuan Thanh et al., Evaluation of the results of interventions to improve treatment adherence of HIV/AIDS patients at two outpatient clinics in Bac Giang province in 2012. Master's Thesis. University of Public Health, 2012.

[8] Hoang Huy Phuong et al., Evaluation of treatment adherence and some results of ART in HIV/AIDS patients at outpatient clinics in Ninh Binh province in 2012. Report on research results. HIV/AIDS Prevention and Control Department, 2012.