

TREATMENT ADHERENCE OF OUTPATIENTS WITH CHRONIC MYELOID LEUKEMIA AT NATIONAL INSTITUTE OF HEMATOLOGY & BLOOD TRANSFUSION

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ABSTRACT

Objective: To describe the treatment adherence of outpatients with chronic myeloid leukemia at national institute of hematology & blood transfusion. **Subjects and Methods:** A cross-sectional descriptive study was conducted on 170 outpatients at National Institute of Hematology and Blood Transfusion from January 2022 to June 2022. **Results:** 98.8% of patients came to the clinic for examination on time. The percentage of patients with drug adherence accounted for 68.8%. There were still many patients who did not comply because they forgot to take the medicine, stopped taking it on their own, and found it difficult to take the medicine. 42.35% of patients had limited knowledge about the disease. Adherence to the diet was relatively good. However, the salt and fat reduction diet was still not well implemented. The exercise regime was still limited, the percentage of people who do exercise occasionally and do not exercise accounted for 50.6%. **Conclusion:** The rate of patient adherence to treatment was still not high. Interventions are needed to enhance the drug adherence of patients.

Keywords: Adherence, Chronic myeloid leukemia

1. INTRODUCTION

Leukemia is a very malignant group of hematologic diseases with many complications and a high risk of death [1]. According to the statistics of the American Health Organization in 2016, the incidence of leukemia was relatively high (3 - 4%) and ranks 9th in male cancers, and 8th in female cancers [2]. The latest statistics in 2020 in the US, each year there are more than 60,000 new cases of Leukemia and about 23,000 deaths due to this disease group [3, 4].

The development of oral chemotherapy has revolutionized the care of cancer patients [5]. With this treatment, patients have more benefits such as more convenience and self-control when and where they take their medication. More oral chemotherapy offers these benefits to patients than intravenous chemotherapy. However, oral administration reduces the ability to monitor the patient's drug use according to the regimen compared to intravenous administration. Studies on adherence to oral chemotherapy have received increasing attention in the research literature in recent

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years. The excitement of initial success was tempered by the finding that a proportion of Leukemia patients failed treatment with imatinib [6]. Furthermore, treatment with Imatinib is not considered curative and patients must be treated for life. This requires long-term patient commitment and adherence can be an important determinant of treatment outcome [7].

Another important challenge in the treatment of patients with Leukemia is adherence. Low adherence was shown to be associated with reduced rates of cellular and molecular genetic responses and, consequently, increased rates of progression and resistance [8, 9]. Several studies have shown that a large proportion of Leukemia patients are not fully compliant with treatment, both intentionally and unintentionally [10]. However, a few executive studies have shown that non-adherence is due to a poor understanding of the factors associated with adherence behavior. Measuring adherence is challenging and all methods have advantages and disadvantages [11, 12]. In addition, the interplay between all potential factors that may contribute to improved compliance in Leukemia is not well understood.

Currently, there are no studies in Vietnam to assess the treatment adherence of patients with chronic myeloid leukemia (CML). However, in the world, there are many studies evaluating the level of adherence and factors related to treatment adherence of patients with chronic myeloid leukemia. Therefore, we carry out this study with the goal of describing the treatment adherence of outpatients with CML at national institute of hematology & blood transfusion.

2. RESEARCH METHODS

2.1 Research subjects, period, and setting: The study subjects were outpatients with CML at National Institute

of Hematology and Blood Transfusion from January 1, 2022, to June 1, 2022.

Inclusion criteria: Patients were 18 years of age or older. Patients were able to communicate, read and understand Vietnamese, and agreed to participate in the study.

Exclusion criteria: Patients who could not participate in the study due to neurological or memory problems that caused the subjects to answer incorrectly will be excluded from the study.

2.2. Research design: Cross-sectional descriptive study

2.3. Sample size: Apply the formula for calculating sample size to estimate a proportion in descriptive research:

$$n = Z^2_{(1-\alpha/2)} \frac{p(1-p)}{d^2}$$

Inside:

n: required research sample size.

$Z_{1-\alpha/2} = 1.96$ with 95% confidence.

p: Estimate the rate of adherence to treatment for CML, choose $p = 0.5$ because no previous studies have been conducted on the study problem.

d: is the absolute error level, based on resources and p-values this study chooses $d = 0.1$. Instead of the formula, $n = 96$ was calculated. An estimated 20% of patients refused to participate in the study. The final formula calculated 116 people. In fact, we studied over 170 patients.

Currently, more than 800 patients with CML have their medical records made and are being treated as outpatients at the Outpatient Department of National Institute of Hematology and Blood Transfusion. Therefore, we chose the convenient sampling method for 6 months of data collection. After excluding cases due to non-

conformance with our selection criteria, the actual sample size obtained was 170 cases.

2.4. Research instrument: The data collection instrument used in this study include:

- *General information:* Includes age, gender, education level, occupation, income, health insurance, and clinical data including diagnosis, interventions, medications, and routine follow-up visits.

- *Adherence to treatment.:* Based on Morisky's (2008) drug adherence measurement questionnaire (including 9 items) [13], we built a questionnaire to measure adherence to CML patients. The questionnaire for measuring adherence in this study included 24 questions: 9 questions about drug adherence; 15 questions about content compliance with diet, exercise, and lifestyle changes. Compliance status was divided into 02 groups: compliance and non-compliance based on the cutoff point of the scale of 27 points. 5 questions about disease knowledge.

2.5. Data collection: Data were collected by indirect interview method based on questionnaires. After registering and receiving the medical examination book, the patient brings the book to clinic No. 5 and arranges the book number in order of waiting for the examination. Here, the researcher will see the list of patients and check the medical examination books, and medical records, and select research subjects. After the patient was examined and guided to do paraclinical tests (if necessary), while waiting for the medicine, the patient will be given a survey form within 30 minutes and given instructions.

- *Data collection process:*

- + Step 1: Get the list of patients, and medical examination schedule, refer to

the medical records at Clinic No. 5. Select eligible subjects to participate in the study.

- + Step 2: Eligible subjects were introduced to the purpose, content, methods, confidentiality of information, and interests of participants in the study. If the patients agree to participate in the study, then sign the consent form and be informed of the research participation form, and then be guided on how to answer the information in the questionnaire.

- + Step 3: The subjects participating in the study were given a set of self-completed questionnaires with the guidance of the investigator.

- + Step 4: After having all the information, the researcher checks all the data. And the data was encrypted, entered into the computer prepared for data analysis.

2.6. Data analysis: The data has been cleaned during the process of checking the form and entering data. The data were analyzed using SPSS 22.0 software according to the research objective. Descriptive statistic was performed to describe the demographic characteristics of the study subjects, the level of treatment adherence, and knowledge about the disease.

2.7. Ethical consideration: Subjects participated in the study completely voluntarily and had the right to stop participating in the study or refuse to answer any questions without explanation. The investigator did not conduct any interventions on study participants. The information obtained was for research purposes only and was kept confidential. The research was only for the purpose of proposing measures to serve and improve the health of the community and has no other purposes. Research results are reported to hospitals and departments for better health care.

3. RESULTS

3.1 General information about research subjects

Table 1. General information about research subjects

Content	Frequency	%	
Age group	<60	131	77.1
	≥ 60	39	22.9
	X ± SD	45.34 ± 14.17	
Gender	Male	91	53.53
	Female	79	46.47
Education level	Unlettered	01	0.6
	Elementary	9	5.3
	Middle School	64	37.6
	High School	54	31.8
	After high school	42	24.7
Occupation	Farmers	66	38.8
	Worker	26	15.3
	office staff	13	7.6
	Freelance, housewife	40	23.5
	Business	10	5.9
	Retire	15	8.8

The average age of the subjects was 45.34 ± 14.17 . Male accounted for 53.53%, female accounted for 46.47%. 75.3% of patients had a high school education level or under high school education level. Most of the research subjects were farmers (38.8%).

Table 2. Adherence to drug use of study subjects

Adherence to drug use of study subjects		Frequency	%
Forgot to take the medicine	Yes	40	23.5
	No	130	76.5
Have you forgotten any medications in the past 2 weeks?	Yes	36	21.2
	No	134	78.8
Arbitrarily stopping the drug when feeling uncomfortable after taking the drug	Yes	11	6.5
	No	159	93.5

Adherence to drug use of study subjects		Frequency	%
Forgot to bring medicine when traveling or away from home	Yes	23	13.5
	No	147	86.5
Took medicine yesterday	Yes	110	64.7
	No	60	35.9
Are there any special reminders or notes about taking the medication?	Yes	109	64.1
	No	61	35.9
Stop taking the medicine on your own when you feel your symptoms improve	Yes	10	5.9
	No	160	94.1
Inconvenient/annoying daily medication use	Yes	8	4.7
	No	162	95.3
Difficulty remembering to take medicine every day	Often	4	2.4
	Sometimes	28	16.5
	Rarely	19	11.2
	Never	119	70.0
Mean score of adherence to drug use		15.46 ± 3.68	

The majority of patients adhere to the drug use and do not have any difficulty in using it. However, forgetting to take medication and not having special reminders when taking medication still accounted for a high rate of 23.5% and 35.9%, respectively.

Table 3. Adherence to the diet of the study subjects

Adherence to the diet		Frequency	%	Mean ± SD
Low salt diet less than 5g/day (tsp)	Often	87	51.2	1.62 ± 0.706
	Sometimes	61	35.9	
	Never	22	12.9	
Diet low in fat and animal fat	Often	87	51.2	1.61 ± 0.691
	Sometimes	63	37.1	
	Never	20	11.7	
Eat more fiber and fresh vegetables	Often	149	87.6	1.14 ± 0.398
	Sometimes	18	10.6	
	Never	3	1.8	

Adherence to the diet	Frequency	%	Mean $\pm$ SD
Eat more fresh fruit	Often	131	77
	Sometimes	35	20.6
	Never	4	2.4
Use of alcohol, beer, and stimulants	Often	4	2.3
	Sometimes	37	21.8
	Never	129	75.9
Mean score of adherence to the diet: 6.88 ± 2.14			

The patient adhered to the diet relatively well. However, there were still patients who sometimes eat a lot of salt (35.9%) and sometimes use fat and animal fat (37.1%).

Table 4. Adherence to the physical activity of the study subjects

Adherence to the physical activity	Frequency	%	Mean $\pm$ SD
Daily exercise	Often	84	49.4
	Sometimes	68	40.0
	Never	18	10.6
Exercise 30 minutes each time	Often	73	42.9
	Sometimes	65	38.2
	Never	32	18.8
Mean score of Adherence to the physical activity: 2.85 ± 1.422			

The number of patients who exercised sometimes and never do exercise accounted for a high rate of 50.6%.

Table 5. Adherence to lifestyle changes of the study subjects

Adherence to lifestyle changes	Frequency	%	Mean $\pm$ SD
Smoke	Never	134	78.8
	Sometimes	27	15.9
	Often	9	5.3
Use of alcohol and stimulants	Never	129	75.9
	Sometimes	37	21.8
	Often	4	2.4

Adherence to lifestyle changes		Frequency	%	Mean ± SD
Apply methods to reduce stress	Often	70	41.2	1.82 ± 0.78
	Sometimes	61	35.9	
	Never	39	22.9	
Be able to control yourself when facing any incident	Often	81	47.6	1.75 ± 0.815
	Sometimes	50	29.4	
	Never	39	22.9	
Mean score of adherence to lifestyle changes : 6.09 ± 2.63				

Most patients did not use tobacco, alcohol and drugs. However, approximately one-fifth of the patients still smoked sometimes or often (21.2 percent), used alcohol and stimulants (24.2%).

Table 6. Overall treatment adherence of study subjects

Adherence	Frequency	%
Adherence (≥ 27)	122	71.8
Non- Adherence (< 27)	48	28.2
Mean score of adherence: 29.27 $\pm$ 4.89		
Total	170	100

The majority of patients adhere to the general treatment (71.8%).

4. DISCUSSION

Research results from 170 patients showed that 117 (68.8%) patients adhered to treatment and 53 patients (31.2%) did not adhere to treatment. The results of this study are similar to the study of F. Efficace et.al. with 27% non-adherence patients [5], the study of Yu-Fen Tsai, MD, Wen-Chuan Huang in Taiwan in 2018 the non-adherence rate was 31% [14]. However, this result is higher than some studies on patients with HCC with a non-adherence rate of 56.8%. In, the rate of drug adherence is 45.8%; adherence to the nutritional regime accounted for 51.6%; compliance with the exercise regime accounted for 48.7% [15].

The reason why patients did not adhere to drug use is that sometimes the patient

forgets the medicine (23.54%), goes away from home without taking the medicine or the patient voluntarily stops taking the medicine when feeling uncomfortable after taking the medicine. In some cases, patients who feel their symptoms are getting better also stop taking the drug on their own. In some cases, self-adjusting doses increased leading to a lack of oral medication before the appointment for follow-up appointment. For patients who are still working, it may be because work sometimes leads to not taking medicine on time or not taking enough medicine. Long, long treatment time leads to subjective quitting 1-2 days. For elderly patients, the reason for non-adherence to medication use may be due to memory loss, so sometimes it is difficult to remember to take daily medication. In some cases,

there are some other diseases that lead to forgetting the medicine.

Regarding the implementation of the diet, the results of the study showed that the majority of patients knew and could implement a salt-reduced diet of less than 5mg/day (1 teaspoon), a diet low in fat and animal fat, as well as reducing sugar and eating more vegetables and fruits in most meals. However, there was still a small percentage of patients who are not compliant: never or rarely follow a reduced salt diet (12.9%), and did not reduce fat and animal fat (11.7%). Besides, 97.7% of patients did not drink or rarely drink alcohol after drug treatment. Diet plays a very important role in the health of CML patients. Good nutrition helps provide the necessary energy for the patient's activities and helps the body regenerate blood cells or damaged tissues after treatment [12]. Therefore, it is necessary to pay attention to counseling and support patients with poor knowledge about this issue.

Regular exercise will help improve health and fitness. However, for patients with contraindications to physical activity, especially in the elderly with accompanying chronic diseases such as cardiovascular disease, kidney disease, etc., it is necessary to practice under the guidance of medical staff with an intensity of exercise [14]. In our study, 49.4% of patients exercised more than 5 times/week and 42.9% of patients ensured a regular exercise of 30 minutes/per time. The number of exercised and non-exercised patients is similar, so medical staffs need to have interventions and health education for patients about exercise to improve their fitness to better respond, more effectively.

Most patients made healthy lifestyle changes. The rates of frequent drinking and smoking were low at 2.4% and 5.3%,

respectively. Patients know how to use relaxation methods such as listening to music and watching the radio and television to reduce stress and relax (77.1%). In addition, the majority of patients were able to control their emotions without getting angry for no reason (77%). The vast majority of patients came to the clinic on time (98.8%). The level of overall adherence accounts for a high rate (71.8%), but knowledge about the disease is still limited. The number of patients who did not understand the basic issues of the disease accounted for 42.35%.

5. CONCLUSION

The rate of patients with drug adherence was 68.8%. There were still many patients who did not comply, such as forgetting to take the medicine, stopping on their own, and finding it difficult to take the medicine. Adherence to the diet was relatively good, but the low-salt and animal fat diet was still not well implemented. The patient's physical exercise was still limited, the percentage of people who did not exercise sometimes and did not exercise accounted for 50.6%. We propose that nurses in particular and healthcare workers in general need to provide knowledge to patients through health education. Which measures have been used effectively, increase the frequency, or change the approach for patients so that they can receive the most effective information.

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