

DEMOGRAPHIC FACTORS AFFECTS THERAPEUTIC COMPLIANCE OF PATIENTS WITH CHRONIC MYELOCYTIC LEUKEMIA IN SURABAYA

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ABSTRACT

Introduction: Leukemia is a hematologic malignancy that can affect all ages. Imatinib is the first-line treatment for chronic myelocytic leukemia, which works by inhibiting the tyrosine kinase in the oncoprotein BCR-ABL. The side effects of these drugs are, such as nausea, vomiting, headaches, indigestion, and joint pain. Compliance with taking medication is a determinant in the success of therapy, but several factors that influence compliance include age, gender, education level, and total income each month.

Purpose: To compare the demographic factors that affect patients with chronic myelocytic leukemia in taking drugs in the Gist and Leukemia Community Surabaya.

Methods: This study used a Cross-Sectional Analytic research design. This research was conducted in September-November 2020 at the Gist and Leukemia Community Surabaya. Retrieval of patient demographic data and filling out the MMAS-8 questionnaire was done by filling in the form provided by the researcher in the form of a link on the google form. After that, short structured interviews were conducted with several respondents by telephone.

Results: After obtaining the research data, the results of hypothesis testing using the Chi-Square test with sig. $p < 0.05$. Results sig. $p < 0.05$ means that the variable affects medication compliance in the respondent during sig. $p > 0.05$ means that the variable does not affect medication compliance among respondents. The results show that the factor influencing medication compliance in patients with chronic myelocytic leukemia is the monthly income with a sig. 0.025. Meanwhile, other factors such as gender, age, and education level do not affect medication compliance in patients with chronic myelocytic leukemia with sig. > 0.05 .

Conclusions: It can be concluded that Chronic Myelocytic Leukemia patients are still in the category of obedience in consuming Imatinib drugs. The demographic factor that affects respondents' compliance with medication is the amount of income per month.

Keywords: Demography, compliance, Chronic Myelocytic Leukemia, Imatinib

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INTRODUCTION

Leukemia is a disease that can affect all ages, both adults and children. In general, leukemia can be classified into four types, namely Acute Lymphoblastic Leukemia (ALL), Chronic Lymphoblastic Leukemia (CLL), Acute Myelocytic Leukemia (AML), and Chronic Myelocytic Leukemia (CML)². In 2008, the incidence of cancer that occurred was 12.7 million and increased so that in 2012 it became 14.1 million. Meanwhile, deaths increased from 7.6 million in 2008 to 8.2 million in 2012³. According to the WHO, in 2018, the death rate due to leukemia in Indonesia reached 11.314 people¹.

There was an increase in the mortality rate due to several factors, including patient non-compliance in taking medication, which could cause internal and external factors. The non-compliance itself can be caused by limited medical expenses, patient apathy, side effects of the drug that make the patient uncomfortable, and the patient's distrust of the drug's effectiveness in recognized by the world and is used in almost all studies that have been done to prove that MMAS-8 has fairly high sensitivity and specificity⁸. Research carried out using MMAS is like the study of the level of compliance of all cancer patients to chemotherapy at Lavalette Hospital Malang, with a total of 78 respondents ranging from the age of 36-77 years. From the result of the study, it was found that respondents with a high level of compliance to chemotherapy were 53 respondents (67.94%), respondents with a moderate level of compliance were 21 respondents (26.92%), and respondents with a low level of compliance were four respondents (5.11%)⁹.

The Surabaya Gist and Leukemia Community, commonly known as Elgeka, is a community formed for chronic myelocytic leukemia and gist (tumor in the stomach). Members of the Surabaya Gist and Leukemia Community are patients from several hospitals in Surabaya, such as Dr. Soetomo, RSAL, PHC, and Surabaya

intentional non-compliance. Whereas in accidental non-compliance due to the patient forgetting to take medication, lack of information on medication instructions, and errors in reading the etiquette⁴.

Tyrosine Kinase Inhibitor (TKI) is an effective and selective therapy for CML with positive BCR ABL. Imatinib is the first generation TKI used for the treatment of CML⁵. The FDA approved imatinib as the first-line chronic phase CML treatment in 2001. Next is dasatinib, a second-generation TKI with 350 times greater strength than imatinib. In addition, there is nilotinib which is taken orally in a capsule form and has an analogous structure to imatinib. Meanwhile, for patients who fail to provide a hematological or cytogenetic response to imatinib, nilotinib will be given instead^{6,7}.

A measuring tool to determine compliance to taking medication is the Self Report Morisky Medication Adherence Scale (MMAS). This study uses MMAS-8 because MMAS-8 is a scale that has been Hajj Hospital. The community was formed in 2005, and CML detected only a few people. At that time, the patient only took hydrea drug, after which the drug glivec for CML was found. Due to the high price of glivec, a Gist and Leukemia community was formed to fight for the entry of glivec drugs into Indonesia without import duty. The community collaborated with Perhompedin (the Association of Indonesian Internal Medicine Specialists) and the Jakarta Indonesian Cancer Foundation, which finally produced results, and glivec drugs could enter Indonesia free of import duty and have been covered by BPJS. The number of CML patients in East Java who are community members is 250 people, while the number of patients diagnosed with chronic myelocytic leukemia and taking Imatinib is 196 people.

METHOD

This study is a quantitative study using a Cross-Sectional Analytic research design to understand and assess the level of

compliance to taking medication in chronic myelocytic leukemia patients in the Gist and Leukemia Community Surabaya. The sample in this study were Chronic Myelocytic Leukemia patients who are members of the Gist and Leukemia Community Surabaya. Respondents who took part in this study were 67 people who were Chronic Myelocytic Leukemia patients taking Imatinib drug.

The sampling technique in this study was non-probability sampling, namely purposive sampling or judgmental sampling. Research select respondents based on subjective and practical considerations that the researcher considers appropriate for the research to be carried out. Respondents must also be able to provide adequate information to answer the research questions posed by the researcher. The sampling method will be conducted using a questionnaire and interviews. Respondents in this study will be given the MMAS-8 questionnaire after filling out the inform consent and filling in the patient's data in a google form.

The inclusion criteria set by the researchers in this study were patients diagnosed with chronic myelocytic leukemia. They joined in the Surabaya Gist and Leukemia Community, chronic myelocytic leukemia patients taking Imatinib, chronic myelocytic leukemia patients who were willing to become respondents during the study, chronic myelocytic leukemia patients who are already working and have an income and a minimum age of 20 years and a maximum of 60 years.

The independent variables in this study included gender, age, education level, and monthly income of the respondents, while the dependent variable in this study was compliance to taking leukemia medication. Data processing from the answers to the questionnaire filled out by respondents was recapitulated and given an assessment/score based on the MMAS-8 scale to see the level of patient compliance. Meanwhile, the demographic data collected was then

performed statistical tests to see the relationship between the demographic profile of the patient and the compliance to drug use in leukemia patients. The statistical test used the Chi-Square comparison test with the help of the IMB SPSS 25 computer program.

RESULTS

Based on the research that has been conducted on 67 respondents, the result obtained the level of compliance to taking medication in patients with Chronic Myelocytic Leukemia in the Gist and Leukemia Community Surabaya.

Table 1. Distribution of CML patients in the Gist and Leukemia Community Surabaya based on the level of compliance

Case Processing Summary			
		Frequency	Percentage
Level of Compliance	High	28	41,8%
	Medium	22	32,8%
	Low	17	25,4%

In the research that was conducted on 67 respondents, data were also obtained which described the characteristics of the respondents based on gender, age, education level, and monthly income.

Table 2. Distribution of compliance levels by gender

		Level of Compliance			Total
		High	Medium	Low	
Gender	Male	14	14	12	40
	Female	14	8	5	27
Total		28	22	17	67

Table 3. Distribution of compliance levels by age

		Level of Compliance			Total
		High	Medium	Low	
Age	20-29	1	3	4	8
	30-39	10	5	2	17
	40-49	10	7	5	22
	50-59	7	7	6	20
	60				
Total		28	22	17	67

Table 4. Distribution of compliance levels by Education Level

		Level of Compliance			Total
		High	Medium	Low	
Education Level	SMP	7	4	3	14
	SMA	11	9	5	25
	D3/S1/S2/S3	10	9	9	28
Total		28	22	17	67

Table 5. Distribution of compliance levels by Monthly Income

		Level of Compliance			Total
		High	Medium	Low	
Monthly Income	<4.200.000	23	10	11	44
	>4.200.000	5	12	6	23
Total		28	22	17	67

The study conducted in the Gist and Leukemia Community Surabaya related to CML disease with a total of 67 respondents showed that the number of respondents with male gender was 40 people compared to the number of female respondents who only amounted to 27 people. Research data based on age, respondents aged 40-49 years were more than the others, namely 22 respondents. Respondents aged 50-60 years were 20 respondents, aged 30-39 years were 17 respondents, and ages 20-29 years were eight respondents.

Based on the research data that has been done, the result of respondents with education levels of D3/S1/S2/S3 is the most with 28 respondents, then 25 respondents with high school education and 14 respondents with junior high school education levels. Meanwhile, the result of the research data based on the monthly income level showed that respondents with

total monthly income with a value of Rp. <4,200,000 were more than respondents with a monthly income of Rp. >4,200,000. With a total of 44 respondents with a total monthly income of Rp. <4,200,000 and 23 respondents for a total monthly income of Rp. >4,200,000.

Table 6. The results of data analysis on demographic factors that affect patient compliance with medication

Results of the Chi-Square Test Analysis	
Independent Variable	Sig.
Gender	.354
Age	.355
Education Levels	.820
Monthly Income	.025

In the statistical test using the Chi-Square test with a significance value of $p < 0.05$, the results obtained were gender significance 0.354, age 0.355, education levels 0.820, and monthly income 0.025. From these data, it can be seen that the demographic factor that affects the level of compliance of CML patients in the Gist and Leukemia Community Surabaya in consuming drugs is monthly income.

DISCUSSION

Based on the results of the data from the study, it was found that Chronic Myelocytic Leukemia patients in the Surabaya Community were still classified as adherent. This is in line with previous research, namely the Compliance Level of Cancer Patients with Chemotherapy at the Lavalette Hospital Malang. Dwi Anggarwati and the results obtained were 53 respondents (67.94%) with high compliance and 53 respondents with moderate compliance. Twenty-one respondents (26.92%) and respondents with a low level of compliance were four respondents (5.11%)⁹.

Based on the demographic data in the Gist and Leukemia Community Surabaya, it was found that there were more male chronic myelocytic leukemia patients than female patients. Both males and females in the community can be categorized as adherent to drug use. The results show no significant effect between the sexes of

males and females. Demographic data based on age obtained the majority of patients aged 40-50 years. CML patients account for 20% of total leukemia, often found in middle-aged adults (40-50 years)¹⁰.

Meanwhile, patients with a low, medium to high education levels do not affect compliance to drug consumption. This is due to the support of information from medical personnel and family and friends in the community. This information support can also be in the form of advice, suggestions, knowledge, and instructions such as instructions for using drugs correctly and adequately according to the instructions from medical personnel. Research data based on the monthly income shows that monthly income affects patient medication compliance. This is because the majority of respondents with an income of Rp. <4,200,000 depend on BPJS assistance in obtaining the Imatinib drug. Meanwhile, respondents with a monthly income more than the regional minimum wages did not comply with taking medication because these respondents relied on the treatment obtained from the BPJS and took other alternative treatments.

CONCLUSION

In a research conducted by the researcher with the research title "Demographic Factors Affects Therapeutic Compliance of Patient with Chronic Myelocytic Leukemia in Surabaya," with a total of 67 respondents, it can be concluded that chronic myelocytic leukemia patients who are members of the Gist and Leukemia Community Surabaya in the period September-November 2020 are still in the category of compliance in consuming Imatinib drugs.

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