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by Lono Wijayanti

Original Articles

The Correlation Between Lifestyle and Increased Uric Acid Levels In The Elderly

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Abstract

Background: Increased serum uric acid levels are the strong predictors of death due to cardiovascular damage. The sedentary lifestyle tends to make physical inactivity and less attention to nutrition in eating. There has been a lifestyle shifting, whether we realize it or not.

Objective: The purpose of this study was to analyze the correlation between lifestyle and the incidence of uric acid in the elderly at nursing home (Griya Werdha) Jambangan Surabaya.

Methods: This study was an analytic study with a cross-sectional approach. The population was 150 elders. A total sample was 109 respondents which taken used Simple Random Sampling. The independent variable was lifestyle and the dependent variable was the incidence of uric acid in the elderly. The research instrument used a questionnaire and observation. This research test used Fisher's exact test = 0.05.
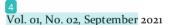
Results: The results showed that some respondents (78.9%) experienced a bad lifestyle and some respondents (81.7%) increased uric acid. There was a correlation between lifestyle and increased of uric acid levels (p=0.000).

Conclusion: The worse a person's lifestyle, the higher risk of increased uric acid levels. It is expected that the elderly able to perform a healthy lifestyle to prevent elevated uric acid levels

INTRODUCTION

Modernization currently contributed on lifestyle changes in society, such as diet, physical activity, and lack of rest (LingQiu, 2013), whether we realize it or not, there has been a shift in lifestyle in society. The instant lifestyle tends to make people passive to do physical activities and less attend to their food nutrition. In addition, this lifestyle shift can lead to various unhealthy behaviors, such as lack of rest, smoking habits, and alcohol consumption. This behavior can lead to various diseases, including uric acid (Sari, 2017).

Increase serum uric acid level is one of the diseases that are often experienced by the elderly. Uric acid is the name of the compound derived from purines or the end of purines product metabolism. Nearly 85% of uric acid are produced by the body through the metabolism of endogen purine nucleotides, guanic-acid (GMP), isonic-acid (IMP) and adenicadic (AMP) (Sari, 2017). Eating habits are important

factors of elderly that affect their health status and physical abilities. Elderly also tends to consume foods that contain high purine substances such as meat (duck, chicken, and beef), offal (tripe, intestine, liver and gizzard), gravel, seafood, nuts (peanuts, *mlinjo*). However, in abnormal conditions due to an unhealthy lifestyle and diet, hyperuricemia can harm people at any age (Mumpuni, 2016).

Currently in the world, the prevalence of hyperuricemia had doubled. The prevalence of uric acid in adults in the United States has risen and affects 8.3 million (4%) Americans. Meanwhile, the prevalence of hyperuricemia was also increasing and affects 43.3 million (21%) adults in the United States (Zhu et al, 2011). Hyperuricemia was estimated to occur in 840 people out of every 100,000 people. The prevalence of uric acid in Indonesia occurred at the age of under 34 years by 32% and over 34 years by 68%. As many as 81% of uric acid sufferers in Indonesia, only 24% go to the medical doctor, while 71% tend to directly consume over-the-counter pain relievers (WHO, 2013).

The highest health complaints (32.99%) were complaints about the chronic disease effects such as uric acid, high blood pressure, low blood pressure and diabetes (Kemenkes RI, 2013). The incidence of uric acid in Indonesia was estimated at 1.6-13.6/100,000 people, this disease generally increased by age (Setyo, 2014). A study of hyperuricemia in a hospital found a higher prevalence rate between 17-28%, due to the influence of the disease and the drugs the patient was taking. In East Java, the prevalence of hyperuricemia was 24.3% in men and 11.7% in women (Dewi, 2014). The prevalence of hyperuricemia in Surabaya was 56.8% (Festy, 2010). Based on an initial survey on February 22, 2019 at nursing home (Griya Werda) Jambangan Surabaya, there were 5 people who experienced uric acid.

Prior study by Jamila (2018) about the Relationship between Lifestyle and Uric Acid Levels at productive age at the Pos Binaan Terpadu (POSBINDU)/ Integrated Development Post, Sumbertebu Village, Bangsal District, Mojokerto Regency, found the spearman rho statistical test results were physical activity (p=0.011), eating patterns (p= 0.01), resting habits (p= 0.141) had significant relationship with uric acid levels at productive age in Posbindu Sumbertebu Village, Bangsal District, Mojokerto Regency.

Meanwhile, a study by Hambatara et al. (2018) showed that there was a relationship between the purine-containing food intake consumption and the hyperuricemia incidence in the elderly in Tulungrejo Village, Ngantang District. The study found that respondents who consumed foods containing purines in the low level or category of purines were 22 people (73.3%) and almost all respondents were categorized as having normal blood uric acid levels as many as 28 people (93.3%). The results of the analysis obtained a significant value = 0.014 (p-value≤0.05), which means that there was a significant relationship.

The unhealthy lifestyle precipitate to various diseases, especially uric acid. The unhealthy lifestyle is a lifestyle on an unhealthy diet, lack of water consumption, not getting regular exercise, uncontrolled stress, smoking, alcohol consumption and drug use are also one of the risk factors for uric acid.

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Hyperuricemia is able to cause very severe pain in the joints due to the escalation of uric acid (Sari, 2017).

Efforts to overcome the occurrence of uric acid problems are to provide counseling on a good diet and equitable Health Education (HE) and explain about uric acid as an effort to overcome the increase in uric acid levels (Astuti, 2015). Globally, almost everyone who suffers from uric acid can be prevented by maintaining a balanced nutritional diet, reducing consumption of high-purine foods, exercising regularly, drinking enough water every day (Mumpuni, 2016). This study aimed to determine the correlation between lifestyle and the incidence of Hyperuricemia in the elderly at Griya Werdha Jambangan Surabaya

METHODS

Study Design

This study was an analytic observational study using cross-sectional design.

Settings

This research was conducted for 4 weeks, in June - July 2019 at Griya Werdha Jambangan Surabaya.

Research Subject

The population in this study were 150 elders in Griya Werdha Jambangan. A total of 109 respondents of sample was taken by Simple Random Sampling. The independent variable was lifestyle and the dependent variable was the uric acid levels in the elderly.

Instruments

The instrument used in this study was a questionnaire sheet to determine the respondent's lifestyle and perform a uric acid meter device to analyze the uric acid levels in the elderly.

Data Collection

After respondents were obtained and had been approved from respondents, explanation about how to fill questionnaire were delivered, then respondents were asked to fill out the questionnaires and then measured uric acid levels with uric acid meter device.

Data analysis

The data were analyzed used Fisher's exact test with a significance level of = 0.05. if the P value < = (0.05), then there is a correlation between lifestyle and the increased of uric acid in the elderly at Griya Werda Jambangan Surabaya.

Ethical Consideration

This research was declared ethically worthy by the Health Research Ethics Commission, Universitas Nahdlatul Ulama Surabaya with No. 214/EC/KEPK/UNUSA/2019.

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RESULTS

Characteristics of Respondents

Table 1 Frequency distribution by age and gender of respondents at nursing home (Griya Werdha) Jambangan Surabaya.

Variable	Frequency	Percentage (%)
a. Age (Years)		
1) 45 – 59 years	9	8,3
2) 60 – 74 years	58	53,2
3) 75 – 90 years	42	38.5
Total	109	100
b. gender		
1) Male	26	23,9
2) Female	83	76,1
Total	109	100

Based on table 1, most of the 109 respondents (53.2%) aged 60-74 years and most (76.1%) were women.

Comparative Analysis

Table 2 Correlation between lifestyle and uric acid incidence in the elderly at nursing home (Griya Werdha) Jambangan Surabaya.

Lifestyle	Uric Acid Incidence				Total	
	Abnormal		Normal			
	n	%	n	%	n	%
Bad	86	100	0	0,0	86	100
Good	3	13,0	20	87,0	23	100
Total	89	81,7	20	18,3	109	100
Fisher's Exact Test						0,000

Based on the results of Fisher's test with a significance value of = 0.05 and obtained a value of = 0.000 which means < then H0 is rejected, meaning that there was a correlation between lifestyle and the incidence of uric acid in the elderly at Griya Werdha Jambangan Surabaya.

DISCUSSION

Based on table 2 shows that of the 109 respondents, most of respondents (78.9%) were experience a bad lifestyle such as imbalanced diet consumption, not getting exercising, and consuming less water. This is adapted to the theory (Anne, 2010) which stated that a healthy lifestyle is a lifestyle by paying attention to certain factors that affect health, including food and exercise. In addition, a person's lifestyle also affects his level of health.

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This result was evident in the questionnaire answers regarding to water consumption. It showed that the elderly consumed less than 2 liters of water per day. The results obtained 103 respondents answered "Never". This kind of lifestyle is not good for the body and health because water have critical role in the smooth removal of uric acid from the body and optimizes the kidney functions (Mumpuni, 2016).

Likewise on the questionnaire about eating patterns, respondents' answers to the questionnaire questions indicated that the elderly consumed imbalanced diet. This was evidenced by almost all 87 respondents consumed an imbalanced diet. The modern lifestyle encourages people to consume fast food. This lifestyle had bad impact for the body and health because our bodies become damaged due to unhealthy food so that the body is susceptible to disease (Nugroho, 2009). Behavior in consuming fast food should be avoided to prevent the emergence of various diseases.
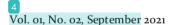
Based on general data, table 1 shows that of the 109 respondents, the majority (76.1%) are female. This result was in accordance with the theory of Agromedia, 2009 that stated the increase in uric acid levels in women generally occurs after menopause, while naturally men over the age of 30 are more susceptible to uric acid.

Based on table 2 shows that of the 109 respondents most (81.7%) experienced abnormal uric acid events. This was evidenced by the results of the uric acid test that had been carried out showing results were outside the normal range, and this indicated of disease in the elderly. According to Mumpuni (2016) that normal levels of uric acid for women range from 2.4 – 6.0 mg/dl while for men range between 3.0 – 7.0 mg/dl; with a normal range of 3.6 mg/dl and 8.3 mg/dl. Under normal conditions uric acid will not be harmful to human health. However, excessive (hyperuricemia) or deficiency (hypouricemia) uric acid levels in the blood plasma indicated that there was a disease in the human body.

Table 1 shows that of the 109 respondents, most (53.2%) of respondents were aged 60-74 years. During aging, decline in physical, psychological, and social function occurred which affect the elderly health. This result was in accordance with Nugroho study (2012) who stated that during the aging process, individual experiences various changes. This period is usually faced with decreased body functions and increased emotional sensitivity, such as sadness, disappointment, hopelessness, and low self-esteem. Furthermore, with a declined in function, the elderly usually feel that they are no longer useful. And according to Sari (2017) there was an increase in uric acid levels with age.

Based on table 3 shows that of the 86 respondents who experienced a bad lifestyle, all (100%) experienced abnormal uric acid levels. Based on the results of Fisher's test with a significance value of = 0.05 and obtained a value of = 0.000 which means < then H0 is rejected, meaning that there was a correlation between lifestyle and the incidence of uric acid in the elderly at Griya Werdha Jambangan Surabaya. The results of this study were in line with prior research by Jaliana (2018) that stated there was a significant correlation between purine consumption patterns and the incidence of uric acid. This study

was also in line with research conducted by Jamila (2018) there was a correlation between physical activity and diet with uric acid levels at productive age in Sumbertebu Village, Bangsal Mojokerto District.

The elderly at nursing home (Griya Werdha) Jambangan mostly had a bad lifestyle or pattern, because of previous bad lifestyle had resulted in these habits were being carried away when they were at Griya Werdha. A bad lifestyle can lead to an increase in uric acid levels in the blood. Therefore, the application of a healthy lifestyle can be one way to prevent and control uric acid.

The information about foods to be avoided by hyperuricemia patients were needed by sufferers (Amalia, 2017). Dietary regulation and lifestyle changes, including weight loss, high-purine foods restriction and monitoring of hyperlipidemia and hypertension, can reduce serum uric acid levels without drug therapy (Dewi, 2009). In hyperuricemia, there an excessive of uric acid were secreted or a renal effect that caused a decrease in uric acid excretion, or a combination of both. Primary uric acid may be caused by starvation, excessive intake of high-purine foods. In the case of secondary uric acid, uric acid is a secondary clinical manifestation of various genetic or acquired processes, including conditions accompanied by increased cell rejuvenation (leukemia, psoriatic multiple myeloma, some anemia) and increased cell destruction (Brunner & Suddarth, 2013).

LIMITATION

Implementation in this study was long because involves the elderly

CONCLUSION

There was a correlation between lifestyle and increased uric acid in the elderly at Griya Werdha Jambangan Surabaya. The results of the study are expected to be useful and can be used as information for health workers and the elderly at nursing home (Griya Werdha) Jambangan Surabaya about the importance of controlling lifestyle, regulating diet in reducing the incidence of increased uric acid.

AUTHOR CONTRIBUTION

Lono Wijayanti   : Conceptualization, methodology, writing-original draft, Software, validation, formal analysis, and supervision

Agus Wahyudi   : Investigation, resources, visualization and data duration

Yurike Septianingrum : Project administration, funding acquisition, writing-review and editing

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CONFLICT OF INTEREST

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