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THE RELATIONSHIP OF DIET AND PHYSICAL ACTIVITY WITH THE INCIDENT OF HYPERUSEMIA IN THE ELDERLY IN KEH VILLAGE, NIBONG DISTRICT, NORTH ACEH DISTRICT

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ABSTRACT

Hyperuricemia includes a degenerative disease that attacks the joints Gout is a metabolic disorder characterized by increased uric acid (hyperuricemia). Food and drinks are one of the factors that can increase uric acid levels in the blood. Physical activity is the movement of the body due to the activity of the skeletal muscles which involves energy expenditure. The purpose of this study was to determine the relationship between diet and physical activity with the incidence of hyperusemia in the elderly in Keh Nibong Village. This study used quantitative research with a correlational design with a Cross Sectional approach. Theimplementation of this research was carried out on July 27 – August 1, 2023. The population is 42 patients. Tehnik sampling using total sampling. Data analysis in this study using Chi Square test and Kolmogorof Smirnov, the results showed that based on statistical tests (Chi-Square), obtained P-Value value = 0.001 (0.001 < 0.05) which means ho was rejected, it can be concluded that there is a significant relationship between diet and incidence hyperusemia in the elderly in Keh Village, Nibong District. An alternative test, Kolmogorov-Smirnov, obtained results with p values of 0.003 < 0.05, which means that there is a significant relationship between physical activity and the incidence of hyperusemia in the elderly in Keh Village, Nibong District.

Keywords: *Diet, Physical Activity, Hyperusemia*

INTRODUCTION

Non-communicable diseases (NCDs) are chronic diseases that are not transmitted from person to person. One of the degenerative diseases that most commonly attacks the elderly is hyperuricemia. Hyperuricemia is a degenerative disease that attacks the joints. The prevalence of joint disease in Indonesia based on diagnosis is 11.9% and based on symptoms is 24.7% (Riskesdas, 2018).

Gout is a disease characterized by sudden, repeated attacks and accompanied by arthritis which feels very painful due to the deposition of monosodium urate crystals (uric acid) which collect in the joints as a result of high uric acid in the blood (hyperuricemia) (Junaidi and Iskandar 2018). The date of the third national Health and Nutrition Examination survey (NHANES 111) in the United States shows that gout attacks more than 3 million men aged >40 years and 1.7 million women aged >40 years and each year there is an increase of 8 .3 million sufferers, with the number of male sufferers amounting to 6.1 million and female sufferers totaling 2.2 million (Noviyanti, et al, 2019).

The prevalence of gout was 3.9% among adults with AS (9.2 million people), with 5.2% (5.9 million people) in men and 2.7% (3.3 million people) in women. The average uric acid level was 6.0 mg/dl in men and 4.8 mg/dl in women, and the prevalence rate of hyperuricemia was 20.2% and 20.0%, respectively. (Chen-xu et al, 2019). The prevalence of joint disease in Indonesia is 7.3%, consisting of 6.1% in men and 8.5% in women (Ministry of Health of the Republic of Indonesia, 2018).

The results of the Indonesian Basic Health Research (Riskesdas) in 2018, the highest prevalence of joint disease based on doctor's diagnostic interviews in 2018 was in Aceh Province (13.3%), and the lowest was in West Sulawesi Province with a percentage of (3.2%), while the prevalence of joint disease based on interviews National Health Diagnosis in 2013 The average number of sufferers of arthritis in Indonesia is (11.9%), the prevalence diagnosed by doctors is higher in women (8.5%) than men (6.1%), in rural areas (7.8%) and (6.9%) in urban areas (Riskesdas, 2018).

The impact of increased uric acid on health results in impaired kidney function, reduced range of body movement and pain on movement. Additionally, shipping damage from repeated gout attacks can cause permanent damage. Problems such as tophi, joint deformities, kidney disease, heart disease, cataracts, dry eyes, and uric acid crystals in the lungs (Healthline.com, 2018).

Gout is caused by diet. Food and drink are one of the factors that can increase uric acid levels in the blood. Excessive purine intake can increase the occurrence of gout, and purines from animal sources contribute more to increased uric acid than purines from plant sources. (Fitriani et al, 2021). Apart from that, fission activity can also trigger the origin of veins. Physical

activity such as exercise or physical movement will reduce uric acid excretion and increase lactic acid production in the body (Aspiani, 2014).

METHODS

This research is analytical in nature. The sample in this study was 42 people taken using the total sampling method. The sample criteria in this study were elderly people aged over 45 years who were diagnosed with gout. The research instrument used was a questionnaire. Data analysis Bivariate analysis of the study used the Chi-Squere Test.

RESULTS AND DISCUSSION

This research was conducted in Keh Nibong Village in 2023. The results of the research obtained were 42 respondents with abnormal uric acid levels.

a. Univariate Analysis

1. Frequency distribution of eating patterns

Table 1. Frequency Distribution of Dietary Patterns

No	*Pola Makan*	*F*	*%*
1	Good	18	42.9
2	Not good	24	57.1
Amount		42	100

Source: Primary Data (Processed in 2023

Frequency distribution of eating patterns in Keh Village, Nibong District, from 42 (100%) respondents, more than half of the respondents (57.1%) were in the poor category and less than half of the respondents (42.1%) were in the good eating pattern category.

2. Distribution of physical activity frequency

Table 2. Frequency Distribution of Physical Activity

No	*Physical Activity*	*F*	*%*
1	Light	13	31
2	Currently	21	50
3	Haevy	8	19
Amount		42	100

Source: Primary Data (Processed in 2023)

Distribution of the frequency of physical activity in Keh Village, Nibong District, from 42 respondents (100%), it is known that less than half of the respondents (31%) were in the light physical activity category, half of the respondents (50%) were in the moderate physical activity category and less than half respondents (19%) were in the heavy category.

b. Bivariate analysis

3. The relationship between diet and hyperusemia

Table 3. Relationship between eating patterns and the incidence of hyperusemia

No	*dietary habit*	*Hyperusemia*				*amount*		*P value*
		Normal		*abnormal*				
		f	***%***	***F***	***%***	***f***	***%***	
1	Good	14	77,8	4	22,2	18	100	
2	Not good	6	25	18	75	24	100	0,001
Jumlah		20	47,6	22	52,4	42	100	

Source: Primary Data (Processed in 2023)

It is known that of the 24 (100%) respondents who have a poor diet, three quarters of respondents (75%) are in the category of abnormal hyperusemia and 18 (100%) respondents who have a good diet, more than three quarters of respondents (77, 8%) the incidence of hyperusemia is within the normal range. Statistical test (Chi-Square), obtained P-Value = 0.001 (0.002 < 0.05).

4. Relationship between physical activity and hyperusemia

Table 4. Relationship between physical activity and the incidence of hyperusemia

No	*Physical activity*	*Hyperusemia*				*amount*		*P value*
		Normal		*Abnormal*				
		f	***%***	***f***	***%***	***f***	***%***	
1	Light		92,3	1	7,7	13	100	
2	Currently		23,8	16	76,2	21	100	
3	Haevy		37,5	5	62,5	8	100	0.003
Amount		20	47,6	22	52,4	42	100	

Source: Primary Data (Processed in 2023)

It is known that of the 13 respondents (100%) who had light physical activity, most of the incidents of hyperusemia were within the normal range. 12

respondents (92.3%) of 21 (100%) had moderate physical activity, more than three quarters of respondents (76.2%) %) is in the category of abnormal hyperusemia, and of the 8 (100%) who have heavy physical activity, less than two thirds of respondents (62.5%) are in the category of abnormal hyperusemia. And the results of the Kolmogorov-Smirnov test obtained results with a p value of 0.003 < 0.05.

CONCLUSION

a. The relationship between diet and the incidence of hyperusemia

The results of the study show that there is a relationship between diet and the incidence of hyperusemia, proven by a p value of 0.002 < 0.05. The results of this research are in line with research by Ramli, Sumiati and Febriani (2020), it was found that of the 44 respondents there were respondents with good eating patterns with high uric acid levels as many as 18 people (40.9%) and normal ones as many as 11 people (25 %). Meanwhile, 15 people (34.1%) had a poor diet with high uric acid levels and none were normal. Wijayanti and Untari (2017) also said that diet is one of the causes of gout.

This research is also in line with research conducted by Ridhoputrie et al (2019), the results of the first statistical test, p value between diet and uric acid levels, namely p = 0.281, which means there is an insignificant relationship between diet and physical activity on the incidence of gout. p value > 0.05.

According to researchers' assumptions, one prevention that can be done is by adjusting diet, where a person's diet can be balanced with foods that contain balanced nutrition such as staple foods, side dishes, vegetables and fruit.

b. The relationship between physical activity and the incidence of hyperusemia

The results of the study showed that there was a relationship between physical activity and hyperusemia with a p value of 0.003 <0.05. The results of this research are in line with research by Suntara, Alba and Hutagalung (2022), which states that there is a relationship between physical activity and uric acid (gout) levels in the elderly with a p value of 0.005 < 0.05. Physical activity can affect uric acid levels because physical activity will cause an increase in lactic acid. Lactic acid will reduce uric acid production (Suntara, Alba & Hutagalung, 2022). According to researchers' assumptions, physical activity and exercise influence uric acid levels which are related to lactic acid. When doing sports activities, lactic acid will be produced.

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REFERENCES

Aspiani, R.Y. (2014). Gerontic Nursing Care Textbook Application Nanda Nic, Dan Noc. Volume 1. Jakarta: Health Book Publisher

Chen-xu, M., Yokose, C., Rai, S. K., Pillinger, M. H., & Choi, H. K. (2019). Contemporary Prevalence of Gout and Hyperuricemia in the United States and Decadal Trends : The National Health and Nutrition Examination Survey , 2007 – 2016. Arthritis & Rheumatology, 71(6), 991–999. https://doi.org/10.1002/art.40807

Fitriani, R., Azzahri, L. M., NURMAN, M., & Hamidi, M. N. S. (2021). Hubungan Pola Makan Dengan Kadar Asam Urat (Gout Artritis) Pada Usia Dewasa 35-49 Tahun. *Jurnal Ners*, *5*(1), 20-27.

Healthline.com. (2018). Gout Complications. www.healthline.com/health/goutcomplications

Iskandar, J. (2013). *Rheumatism and Gout*. Jakarta: PT Bhuana Popular Science

Novianti, A., Ulfi, E., & Hartati, LS (2019). Relationship between gender, nutritional status, consumption of milk and food with uric acid levels in the elderly. *Indonesian Nutrition Journal (Indonesian Journal of Nutrition)*, 7 (2), 133-137

Riskesdas. (2018). *Basic Health Research*. Jakarta: Balibatang Ministry of Health of the Republic of Indonesia

Suntara, D.A., Alba, A.D., & Hutagalung, M. (2022). The Relationship Between Physical Activity and Uric Acid (Gout) Levels in the Elderly in the Batu Aji Community Health Center Working Area, Batam City. Journal of Research Innovation, 2(12), 3805-3812.

Wijayanti, T., & Untari, I. (2017). The Relationship Between Diet and Gout. UREKOL