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HEALTH STATUS OF ELDERLY BASED ON DAILY ACTIVITIES LIVING, CHOLESTEROL AND URIC ACID PROFILE IN KUPANG

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ABSTRACT

Uric acid and Cholesterol cause inflammation accompanied deformity knees and legs. Health problems in the elderly come from declining body cells, so the function and body endurance decreased along with increased risk factors for diseases. Prevalence of uric acid in Asia regions the lowest Papua New Guinea 1% highest Marshall Islands 85% and Indonesia 18%. Uric acid is main factor predicting kidney failure. Objective: the aim of this study was to describe the prevalence of uric acid levels and cholesterol in the pre-elderly around liliba RT 41/RW001. Method: This type of research is descriptive, the number of respondents who are willing to participate in this study is 55 people by signing an informed consent. The data were obtained by examining cholesterol levels using the POCT method, as well as consumption patterns and physical activity which were measured using a questionnaire. Results: The results showed that Cholesterol levels that consumed high-fat foods were found more in respondents who often consumed fatty foods with normal cholesterol levels of 18 people (32.7%), a high threshold of 10 people (18.2%), and high cholesterol levels of 8 people (14.5%)). Cholesterol levels who rarely consumed meat with high cholesterol were 9 people (16.4%), and high-limit cholesterol levels were 11 people (20.0%). Cholesterol levels of respondents who had sleep duration of 6-8 hours with high cholesterol levels were 6 people (10.9%), normal cholesterol levels were 15 people (27.3%), and high limit cholesterol levels were 9 people (16.4%). Cholesterol levels of respondents who did not carry out health checks who had high cholesterol levels were 7 people (12.7%), normal cholesterol levels were 23 people (41.3%), and high limits were 19 people (34.5%). abnormal uric acid levels in 19 (34.5%) respondents. The highest uric acid levels were obtained at the age of 45-49 years (41.8%). Most abnormal uric acid levels were found in women, 12 people (21.8%). Abnormal uric acid levels were most common in respondents who consumed high-purine foods (21.8%), consumed meat (12.7%), and who always consumed high-purine vegetables (10.9%). Abnormal uric acid levels were most common in respondents who had never done strenuous physical activity as many as 13 people (23.6%), while in respondents who always did light physical activity uric acid levels were not normal as many as 15 people. In this study, it was found that 32.8% of respondents who had high uric acid levels had never had regular health checks. Conclusions: . The levels of uric acid and cholesterol in the elderly in Liliba Village RT 41/RW 001 based on age and gender, namely abnormal uric acid levels, were most commonly found in the 45-59 year age category of 10 people (18.2%) and in female as many as 12 people (21.8%). Based on age and gender, the highest cholesterol level was found in the 45-59 year age category, which was mostly found in women with normal cholesterol levels, 9 people (16.4%), high threshold, 10 people (18.2%), while high cholesterol levels as many as 4 people (7.3%).

Keywords: cholesterol; elderly; gout

INTRODUCTION

In humans, serum uric acid (SUA) is the final oxidation product of purine catabolism (Darmawan, 2016) Excessive uric acid production and its decreased excretion by the kidneys are one of the major causes of hyperuricemia (Julianti & Efendi, 2011; Lumunon, 2011). The prevalence of hyperuricemia is rapidly increasing in the inter- national communities; emerging evidence shows that hyperuicemia is now more frequent in the developing nations (Novianti . et al.,, 2019). The variability in SUA levels is multi-factorial and influenced by both genetic and environmental

factors (Djaja, 2012). Epidemiological studies showed that elevated levels of uric acid in serum are increasingly related to hypertension. Increased serum uric acid levels have been linked to high levels of Insulin, known as hyperinsulinemia, a decrease in physical activity or work, a high intake of alcoholic beverages, hypertension, and an increase in the values of the body mass index, or BMI, and a drop in HDL cholesterol levels. A high amount of the blood's lipids is called dyslipidemia. One of the most important risk factors for diabetes and heart disease is dyslipidemia (Nurbeti, 2017). Diabetics who have dyslipidemia develop atherosclerosis, which both type 1 and type 2 diabetics experience more quickly. The lipid triad is present in diabetics as evidenced by dyslipidemia, moderate doses of elevated lipoprotein , and increased concentrations of reduced lipoprotein (Zhao. et al., 2005). Despite the danger of cardiovascular disease, several studies have found that diabetic people had normal or moderately raised total cholesterol levels (Sari, 2020). Increased uric acid levels can cause disturbances in the human body such as a feeling of pain in the joint area and is often accompanied by the onset of extreme pain for the sufferer (Darmawan, 2016). Gout or commonly known as gout arthritis as a degenerative disease is a disease caused by the accumulation of monosodium urate crystals in the body (Lee. et al., 2005).

Trigger factors for the occurrence of Gout Arthritis are classified into two, namely controlled and difficult to control (Nasir,2019). These factors are then broken down into predisposing, primary, and secondary factors. Primary factors occur due to heredity, secondary factors can occur due to high uric acid production or problems that result in disruption of the process of uric acid excretion, while gender, age, and climate are factors that influence the occurrence of predisposing factors (Baruah, 2011). Health problems generally arise in the elderly (elderly). An increase in the number of elderly population will increase health problems in the elderly (Abikusno, 2013). One of the diseases that attacks the elderly is gout or known as gout. Gout arthritis is a disease that is often found in men aged between 30-40 years and in women aged 55-70 years, the incidence of women is rare except after menopause. This decrease in functional capacity causes the elderly to not be as effective in responding to stimuli as younger people. The decreased capacity to respond to stimuli makes it difficult for the elderly to maintain a stable physical and chemical status of the body [4]. Cholesterol is a structural lipid (forming cell structure) that functions as a component needed in most body cells. Cholesterol is a substance that resembles wax. About 80% of cholesterol is produced by the liver and the rest is obtained from foods rich in cholesterol content such as meat, eggs and dairy-based products. Cholesterol is very useful in helping the formation of hormones, vitamin D, a protective layer for nerve cells, building cell walls, dissolving vitamins (vitamins A, D, E, K) and developing brain tissue in children (Amelia. et al., 2018).

High total cholesterol levels will form atherosclerosis which can cause hypertension and blockage of blood vessels of the brain, heart and leg blood vessels. Blockage of blood vessels in the brain causes cerebrovascular disease or brain blood vessel disease such as stroke. Blockage of the blood vessels in the heart will cause cardiovascular disease such as coronary heart disease, while blockage in the blood vessels of the legs can cause peripheral vascular disease. This situation often occurs in the feet which can cause pain, cramps, numbness, and even gangrene (Lee . et al.,, 2005). Some of the causes of excess cholesterol are obesity, sedentary lifestyle, age and gender, smoking, family history and daily diet (Lai. Et al., 2001). Along with the development of the times and modernization that continues to occur, it causes changes in people's patterns and lifestyles, especially in urban areas. One of these changes in patterns and lifestyles is the many fast food restaurants that sell foods that contain high cholesterol and contain little nutrition. Consuming this

type of food is at risk of developing degenerative diseases. In this disease, the function of certain structures and tissues or organs can deteriorate over time (Ekundayo. Et al.,2010).

Frequent consumption of high-fat foods is the main cause of increased total cholesterol levels in the blood. The results of Sulastri's research show that cholesterol levels will decrease along with the low intake of fatty foods. Cholesterol levels that exceed normal limits will trigger the process of atherosclerosis. Atherosclerosis is the process of narrowing of blood vessels by fat. Atherosclerosis is a clinical manifestation of heart disease.The lifestyle that must be improved to prevent cardiovascular disease is to regulate a balanced lifestyle, starting from a balance between motion and immobility, activity and sleep, a balance between eating and exercise. It is the root of other health problems.The research was conducted in the Liliba Village, RT 41/RW 001, Kupang City, with a population of 650 people and 131 heads of households. This location is included in an urban area with a fairly high level of density and lack of physical activity that is not balanced with a healthy diet

METHOD

The type of research used in this study was descriptive, namely to find out the description of uric acid levels in the elderly in RT 41/RW 001, Liliba Village, Kupang City. Sampling in this study was conducted at RT 41/RW 001, Liliba Village during April - May 2022. The population in this study were all pre-elderly aged 45-59 in RT 41/RW 001, Liliba Village, totaling 100 people. The sampling technique used in this study is random sampling.

RESULTS

This research was approved by the Health Research Ethics Commission No.LB.02.03/1/0128/2022. Number of respondents who 55 people willing to participate in the study by signing an informed consent. Respondent characteristics can be seen in the table:

Table 1.
Distribution of Uric Acid Levels by Gender (n=55)

Gender	Uric Acid Levels				Total	
	Normal		Abnormal			
	f	%	f	%	f	%
Man	16	29,1	7	12,7	23	41,8
Woman	20	36,4	12	21,8	32	58,12

Table 1, the most abnormal uric acid levels were found in women with 12 people (21.8%) and in men with 7 people (12.7%).

Table 2.
Distribution of Uric Acid Levels by Age (n=55)

Age Category (Years)	Gender/Uric Acid Levels				Amount	
	Normal		Abnormal			
	f	%	f	%	f	%
45-49	24	43,6	10	18,2	34	61,8
50-55	5	9,1	5	9,1	10	18,2
56-59	7	12,7	4	7,3	11	20
Total	36	65,4	19	34,6	55	100

Based on Table 2, the most abnormal uric acid levels were found in the 45-49 year old age category of 10 people (18.2%). This group is a premenopausal group.

Table 3
Distribution of Total Cholesterol Levels Based on Gender of Respondents' Age Group

Age Category (Years)	Gender / Total Cholesterol Levels						Total
	M			W			
	Normal	ABA	High	Normal	ABA	High	
45 – 49	8(14.5%)	3(5.5%)	0	9(16.4%)	10 (18.2%)	4 (7.3%)	34(61.8%)
50 – 55	2 (3.6%)	0	1(1.8%)	1 (1.8%)	4 (7.3%)	2 (3.6%)	10(18.2%)
56 – 59	5 (9.1%)	2(3.6%)	2(3.6%)	1 (1.8%)	1 (1.8%)	0	11(20.0%)
	15(27.3%)	5(9.1%)	3(5.5%)	11(20.0%)	15 (27.3%)	6 (10.9%)	55(100.0%)

Table 3 shows that respondents with cholesterol levels based on gender and age. Respondents who had normal cholesterol levels at the age of 45-49 were 9 women (16.4%), and high-limit cholesterol levels were 10 women (18.2%), and high cholesterol levels were 4 women (7.3%). At the age of 50-55 the respondents who had normal cholesterol levels were 2 men (3.6%), high limit cholesterol levels were 4 women (7.3%), and high total cholesterol levels were 2 people (3.6%)). At the age of 56-59 the respondents who had normal cholesterol levels were 5 men (9.1%), high threshold cholesterol levels were 2 men (3.6%), and high cholesterol levels were men 2 people (3.6%).

Table 4.
Distribution of Uric Acid Levels Based on Consumption of High Purine Foods, Consumption of High Purine Meat and Vegetables

Food consumption	Uric Acid Levels									
	Man				Woman				Amount	
	Normal		High		Normal		High			
	f	%	f	%	f	%	f	%	f	%
High purine food										
Often	3	5,5	0	-	2	3,6	5	9,1	10	18,2
seldom	10	18,2	5	9,1	13	23,6	6	10,9	34	61,8
Never	3	5,5	2	3,6	5	9,1	1	1,8	11	20
Meat										
often	6	10,9	2	3,6	6	10,9	7	12,7	21	38,2
seldom	10	18,2	5	9,1	14	25,4	5	9,1	34	61,8
Vegetables										
Always	4	7,3	3	5,5	5	9,1	6	10,9	18	32,7
Often	9	16,4	3	5,5	11	20	4	7,3	27	49,1
Never	3	5,5	1	1,8	4	7,3	2	3,6	10	18,2

Table 4, it is known that abnormal uric acid levels were found in women as many as 12 (21.8%) people who had the habit of rarely and or often consuming foods high in purines while in men there were 10 people (18.2%) who had habit of rarely and or often consuming foods high in purines. Abnormal uric acid levels were found in women who often consumed meat as many as 7 people (12.7%) while in men as many as 5 people (9.1%) had a habit of rarely consuming meat. Abnormal uric acid levels were also found in women who always consumed high-purine vegetables as many as 6 people (10.9%) while in men who 3 people (5.5%) had the habit of always and often consuming

high-purine vegetables.

Tablel 5.

Distribution of Uric Acid Levels Based on Heavy and Light Physical Activity

Physical activity and strenuous activity	Uric Acid Levels								Amount	
	Man				Woman					
	Normal		High		Normal		High			
	f	%	f	%	f	%	f	%	f	%
Strenuous activity										
Always	2	3,6	0	-	2	3,6	1	1,8	5	9,1
Often	1	1,8	1	1,8	1	1,8	1	1,8	4	7,3
Rarely	6	10,9	1	1,8	7	12,7	2	3,6	16	29,1
Never	7	12,7	4	7,3	10	18,2	9	16,4	30	54,5
Activity										
Light	11	20	7	12,7	14	25,5	8	14,6	40	72,7
Always	2	3,6	0	-	2	3,6	1	1,8	5	9,1
Often	1	1,8	0	-	1	1,8	0	-	2	3,6
Seldom	2	3,6	1	1,8	3	5,5	2	3,6	8	14,6

Table 5, it is known that abnormal uric acid levels in women are 13 people (23.6%) with the highest number of respondents in the category that has never carried out strenuous activities as many as 8 people (14.5%), while Abnormal urate in males was 7 people (12.7%) with the highest number of respondents being in the category that had never done strenuous activity as many as 5 people (9.1%). Abnormal uric acid levels in women who always do light activities are the most numerous respondent category, namely 9 people, and abnormal uric acid levels in men who always Doing light activities is the category of the most respondents, namely 6 people (10.9%).

Tabel 6.

Distribution of Uric Acid Levels Based on Habits of Conducting Health Examinations

Habit on medical check up	Uric Acid Levels								Amount	
	Man				Woman					
	Normal		High		Normal		High			
	f	%	f	%	f	%	f	%	f	%
Yes	2	3,6	1	1,8	3	5,5	0	-	6	10,9
No	14	25,5	6	10,9	17	30,9	12	21,8	49	89,1

Table 6, it shows that 6 people (10.9) have a habit of having a health check-up, 2 people (3.6%) have normal uric acid levels, 3.6% normal uric acid levels in women 3 people (5.5%), and those with high uric acid levels in men were 1 person (1.8%). Meanwhile, 49 people (89.1%) did not have health checks, 14 men (25.5%) had normal uric acid levels, 17 women (30.9%) had normal uric acid levels. %), high uric acid levels in men were 6 people (10.9%) and respondents who had high uric acid levels in women were 12 people (21.8%).

Table 7, it shows that a high-fat diet with high cholesterol levels are those who often consume high-fat foods as many as 8 people (14.5%), high-limit cholesterol levels are as many as 10 people (18.2%), and high cholesterol levels are as many as 18 people (32.7%).

Table 7.
Distribution of Cholesterol Levels Based on Consumption of High-Fat Food (n=55)

Frequency	Cholesterol Levels						Total	
	Normal		ABT		high			
Always	3	(5.5%)	5	(9.1%)	1	(1.8%)	9	(16.4%)
often	18	(32.7%)	10	(18.2%)	8	(14.5%)	36	(65.5%)
seldom	4	(7.3%)	4	(7.3%)	1	(1.8%)	9	(1.8%)
Never	1	(1.8%)	0		0		1	(16.4%)

Table 8.
Distribution of Cholesterol Levels Based on Meat Consumption

Frequuency	Colesterol Levels						Total	
	Normal		ABT		Tinggi			
Often	10	(18.2%)	11	(20.0%)	1	(1.8%)	22	(40.0%)
Seldom	16	(29.1%)	8	(14.5%)	9	(16.4%)	33	(60.0%)

Table 8 it shows that respondents who rarely consumed meat had high cholesterol levels as many as 9 people (16.4%), normal cholesterol levels were 16 people (29.1%), and high limit cholesterol levels were more those who often consumed meat as many as 11 people (20.0%). The results of this study indicate that consuming meat can also affect cholesterol levels.

Tabel 9.
Distribution of Cholesterol Levels Based on Sports Activity

Frequency	Cholesterol Levels						Total	
	Normal		ABT		Tinggi			
always	4	(7.3%)	1	(1.8%)	1	(1.8%)	6	(10.9%)
Often	9	(16.4%)	4	(7.3%)	3	(5.5%)	16	(29.1%)
Seldom	10	(18.2%)	11	(20.0%)	6	(10.9%)	27	(49.1%)
Never	3	(5.5%)	3	(5.5%)	0		6	(10.9%)

Table 9 it shows that the respondents who rarely do sports activities with high cholesterol levels are 6 people (10.9%), normal cholesterol levels are 10 people (18.2%), and high limit cholesterol levels are 11 people (20.0%).

DISCUSSION

The Health Research Ethics Commission approved this study under the number LB.02.03/1/0128/2022, and 55 participants signed an informed consent form to participate. Table 1 shows that the majority of respondents were aged 45-49 years, with 23 female respondents (41.8%) and 11 male respondents (20%), while the lowest number of respondents were aged 50-55 years, with 7 female respondents (12.7%) and 3 male respondents (5.5%). Abnormal uric acid levels were more common in women, with 12 people (21.8%) affected, and in men, with 7 people (12.7%). High uric acid levels were generally more prevalent in men. In women, uric acid levels do not increase until after menopause, as the hormone estrogen helps increase uric acid excretion through the kidneys. However, after menopause, uric acid levels in women increase. Uric acid levels also tend to increase with age (Titaniasari, 2019).

Total cholesterol levels were classified into three categories: optimal if cholesterol levels were below 200 mg/dL, upper threshold (ABA) if total cholesterol levels were between 200-239 mg/dL, and high if total cholesterol levels were over 240 mg/dL (Zhao, et al., 2005) According to Table 3, elderly men were most likely to have normal total cholesterol levels, with 15 people (27.3%), while elderly women had the highest number of high-limit total cholesterol levels, with 14 people (25.5%), and high cholesterol levels, with 7 people (12.7%). High cholesterol increases the risk of narrowing of the arteries due to plaque buildup and hardening of the arterial walls, known as atherosclerosis (Putri, et al., 2017). The results showed that gender had an impact on cholesterol levels.

Table 9 demonstrates that 6 people (10.9%) with high cholesterol levels rarely engaged in sports activities, while 10 people (18.2%) had normal cholesterol levels and 11 people (20.0%) had high-limit cholesterol levels. Sports activities also affect total cholesterol levels in the blood, as they are a natural necessity for humans. Endurance increases with an increase in sports activities, and activities such as walking, brisk walking, jogging, healthy heart gymnastics, cycling, and non-competitive and non-excessive sports activities strengthen the heart's function and reduce the risk of high cholesterol. Regular exercise increases HDL levels and lowers LDL levels, leading to a balanced total cholesterol level in the blood (Adhiyani, 2013) Research by Titaniasari (2019) showed that sports activities, such as daily activities or exercise with appropriate and consistent intensity, are healthy lifestyle choices that affect heart disease, and high sports activity can prevent the process of atherosclerosis. In her study, there was a relationship between sports activity and total cholesterol levels. Similarly, suarsih (2020) demonstrated a relationship between exercise activity, fat intake, and total cholesterol levels. According to her study, a lack of sports activity leads to fat accumulation in body tissues, which affects total blood cholesterol levels.

CONCLUSION

We concluded that the health status of elderly in Public Health Center of liliba is in a proper category, although on the laboratory examination found more elderly have an abnormal result. Therefore it is necessary to make health promotion efforts and early detection of elderly health problems that can be in an integrated service program for elderly called integrated health service for elderly, where They will get an education and proper treatment for all health problems experienced by the elderly so that the quality of life of the elderly become better.

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