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Research Article

The Effect of Combination Bay Leaf Stew and Ginger on Uric Acid Level

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Abstract

Aims: According to the WHO, there were 230 million gout sufferers in 2007, and that number is expected to rise dramatically by 2020. The average age of gout patients is 40-59 years old, and the number of sufferers has increased since 2000. Few people with gout are well-managed, and gout prevalence is increasing in both developed and developing countries (Yankusuma and Putri, 2016). During September and October 2022, data obtained from 30 senior citizens in Wanasari Village, Kp.Utan, Cibitung District, Bekasi Regency revealed that 12 of the elderly had increased uric acid levels. In September 2022, 12 senior individuals with increased uric acid levels were discovered in Wanasari Village, Kp.Utan, Cibitung District, Bekasi Regency. Using the data shown above, it is clear that there are still many elderly persons who have high uric acid levels.
Method: This study design employs an experimental (pre-experimental) approach, using a one-group pretest posttest design, that is, a design that does not employ a control group, but instead performs the first observation (pretest), allowing testing of changes that occur after the experiment.
Result: In September 2022, the average uric acid level of the elderly in Wanasari Village Kp.Utan, Cibitung District, Bekasi Regency was 8.94 before they were administered a combination of boiled bay leaves and ginger. In September 2022, the average uric acid level among the elderly in Wanasari Village Kp.Utan, Cibitung District, Bekasi Regency was 5.55 after they were administered a decoction of bay leaves and ginger.
Conclusion: The combination of steamed bay leaves and ginger has a significant effect on reducing uric acid levels in the elderly in Wanasari Village, Kp.Utan, Cibitung District, Bekasi Regency in September 2022 (p value = 0.000).

Keywords:
Gout Arthritis,Bay Leaf, Ginger, and Elderly

INTRODUCTION

Uric Acid Is the end result of purine metabolism. Endogenous uric acid is generated by the organism, while exogenous uric acid is derived from food. About 80-85 percent of uric acid is produced by the body, while the remainder is derived from diet. Please observe that normal uric acid levels for adult women range between 2.4 and 5.7 mg/dl, while normal uric acid levels for adult men range between 3.4 and 7.0 mg/dl (1). According to the World Health Organization, the elderly are a group of individuals aged 60 or older. In 2013, 11.7 percent of the world's population was over the age of 60, and it is anticipated that this proportion will increase as life expectancy rises. The global life expectancy in 2000 was 66 years. In 2012, it reached 70 years, and in 2013, it reached 71. The geriatric population in Indonesia is also increasing annually. In 2009, the elderly

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accounted for 7.49% of the world's population, in 2011 that number increased to 7.69%, and in 2013 it reached 8.1% (2).

According to WHO, there were 230 million gout sufferers in 2007 and this number is expected to increase dramatically in 2020. Since 2000, the number of gout sufferers has increased, and the average age of those affected is 40-59 years. The prevalence of gout continues to increase in both developed and developing countries and there are few well-controlled uric acid sufferers (3). The prevalence of hyperuricemia in society and in some Western literature varies greatly, estimated at 2.3-17.6%, while the prevalence of gout varies from 0.16-1.36%. In China in 2006, the prevalence of gout was 25.3% and gout was 0.36% in adults aged 20 to 74 years, while the prevalence of gout in the United States was 2 to 13%.

According to the results of the same WHO survey published in 2017, Indonesia has the world's fourth largest gout population. According to a World Health Organization survey, 81% of the population tested had gout, with 35% of gout occurring in men under the age of 34 (4).

According to a survey of health workers, uric acid ranks second after osteoarthritis in Indonesia. In Indonesia, the prevalence of gout arthritis is 1.6-13.6/100,000 people. The highest prevalence is 33% among those aged 75 years, followed by those aged 65-70 years at 30.6%. The frequency of occurrence was higher for those who did not attend school, 24.1%, compared to those who finished elementary school, 16.3%.

Riskesdas findings for gout sufferers in Indonesia in 2013 were 11.9% and 24.7% depending on diagnosis or symptoms. Dr. Van den Horst of the Netherlands conducted the first drop research in Indonesia in 1935, after observing 15 cases of severe gout in poor people. Dr. E. Tehupedori investigated the possibility of uric acid levels differing amongst ethnic groups in Ujung Pandang in the early 1990s. Then it was discovered that 50% of urban patients who came for treatment had been suffering from gout for at least 6.5 years, with some suffering for as long as 7-9 years. (5). In Indonesia, it was reported in several areas, especially in Sinjai (South Sulawesi) 10% male and 4% female, Minahasa (North Sulawesi) 34.3% male and 23.31% female, and Bandung (Central Java) 24.3% male and 11.7% in women (6). Nationally the prevalence of joint disease based on the diagnosis of health personnel is 11.9% and the prevalence based on diagnosis or symptoms is 24.7% (7).

In 2013, data on the presentation of the old or the aged in Indonesia revealed that the Special Region of Yogyakarta had the highest number or percentage of elderly people, with 13.04%, East Java 10.40%, and Central Java 10.34%. Meanwhile, Papua has the lowest number or percentage of senior persons (1.94%), West Papua has 3.17%, and Riau Islands has 3.56%. Meanwhile, Papua, the province, is one of the three with the lowest number or proportion of senior people. Surakarta has 99,729 old people in 2016, accounting for 8.99% of the total population (8).

METHODS

The experimental method (pre-experiment) is used in this study, with a one-group pretest posttest design, i.e. a design that does not utilize a comparison group (control), but instead makes the first observation (pretest), which permits assessing the changes that occur after the experiment (program). (9)

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RESULTS

Table 1. Characteristics of Respondents Based on Age and Parity

No.	Variable	frequency	%
1.	Gender		
	Man	6	50,0
	Woman	6	50,0
	Total	12	100,0
2.	Age		
	≥60 years	10	83,0
	≤61 years old	2	63,0
	Total	12	100,0
3	Family History		
	No	8	66,0
	Yes	4	33,0
	Total	**12**	**100,0**
4	Consumption of Drugs		
	No	8	66,0
	Yes	4	33,0
	Total	**12**	**100,0**
5	Alcohol consumption		
	No	12	100,0
	Yes	0	0,0
	Total	**12**	**100,0**

According to table 1, the gender distribution of respondent characteristics is male as many as 6 respondents (50%), female as much as 6 respondents (50%). According to table 1, the distribution of respondent characteristics is based on the age of 12 respondents who are on average 60 years older, namely 10 respondents (83%), and 61 years as many as 2 respondents (63%). According to table 1, the distribution of respondent characteristics based on family history shows that as many as 8 respondents (66%) did not have a history of gout and 4 respondents (33%) did. According to table 1, the distribution of respondents' characteristics based on respondents who did not consume drugs was 8 respondents (66%), and 4 respondents (33%) consumed drugs. According to table 1, the distribution of the characteristics of the respondents based on alcohol usage shows that 12 respondents (100%) did not consume alcohol.

Average Uric Acid Levels in the Elderly Before and After the Combination of Bay Leaves and Ginger Decoction

Table 2. Average Uric Acid Levels in the Elderly Before and After the Combination of Bay Leaf and Ginger Decoction

Giving a Combination of Bay Leaves and Ginger Decoction				
	Mean	**Difference Mean**	**Min**	**Max**
Pretest	8,94	3,39	7,6	9,8
Postest	5,55		4,1	7,3

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According to table 2, uric acid levels in the elderly before and after being given a combination of giving boiled bay leaves and ginger obtained an average value of 8.94, there was a decrease in uric acid levels in the elderly after being given a combination of giving boiled bay leaves and ginger with a value an average of 5.55, so the difference in the average value of uric acid levels in the elderly before and after being given a combination of giving boiled bay leaves and ginger A normality test was performed prior to the bivariate analysis, and pretest and posttest measures were given a mixture of bay leaf and ginger decoction to reduce uric acid levels in the elderly. The Shapiro Wilk test was used to determine data normality. Following the normality test, the Levenes test was used to determine homogeneity. This test aims to determine that the change in the average decrease in post partum bleeding occurs not due to variations in respondents, but the administration of misoprostal and oxytocin. If the p value > 0.05, the data is homogeneous.

Table 3. Results of the Shapiro-Wilk Normality Test

Measurement	Shapiro-Wilk	Description
Pre Test	0,294	Normal
Post Test	0,896	Normal

Based on the results of the univariate normalcy assumption test in table 3, the pre-test measurement of decreased uric acid levels has a Shapiro Wig value of 0.292, indicating that HO is accepted because the p value is more than 0.05 (greater than the alpha value). When testing uric acid levels, the post test has a Shapiro Wig value of 0.896 since the p value is more than 0.05 (greater than the alpha value). As a result, the assumption of normalcy or otherwise regularly distributed is made.

Table 4. Decreased Acid Levels in the Elderly Before and After Given a Combination of Bay Leaf and Ginger Decoction

Acid Content	*Pretest*	*Posttest*	Differenc	*P value*
	Mean	Mean	e Mean	
Giving a Combination of Bay Leaves and Ginger Decoction	9,94	5,55	3,39	0,000

According to table 4, the findings of the analysis of decreased uric acid levels after receiving combination therapy of bay leaf and ginger decoction, there was a 100% decrease in uric acid levels in the elderly. The average analysis revealed that uric acid levels in senior respondents who received combination therapy with boiled bay leaves and ginger dropped by 3.39 with a p value of 0.05. According to the data above, there was an effect of delivering a combination of bay leaf decoction to lowering uric acid levels in the elderly at 95%.

DISCUSSION

Characteristics of Respondents

Based on the results of the study in Table 2, it was shown that all respondents before being given a combination therapy of bay leaf and ginger decoction for the elderly in Wanasari Kp.Utan Village, Cibitung District, Bekasi Regency, had uric acid levels increased by 12 respondents (100%). According to researchers, increased uric acid levels in the elderly have several factors, including gender, age, family history and history of drug consumption.

Uric acid becomes a problem when levels in the body exceed normal (10). Gout is a joint disease caused by high concentrations of uric acid in the blood. High levels of uric acid in the blood that exceed normal limits cause

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uric acid to accumulate in the joints and other organs of the body, with uric acid concentrations ranging from 2.6 mg/dL in women and 3.5-7.2 mg/dL in men. dl.

Gender is a factor that influences gout, according to table 1, with 6 respondents (50%) male and 6 respondents (50%) female. Gender, according to studies Men are more likely than women to develop uric acid, particularly those over the age of 30, because women produce a greater proportion of the hormones estrogen and uric acid, which are produced during menstruation. After menopause, women are more vulnerable to the condition. In addition to gender, other factors that affect gout are age, according to Table 1, 10 respondents (83%) are aged ≤ 60 years old. According to researchers related to increased uric acid Elderly is the last developmental stage of a person's life, from age 60 to age 120 or 125. Elderly can be classified as: early elderly (65-75 years), middle age (75 years and over), elderly (85 years or more) (11)

The development of the elderly in the context of human growth and development experiences various problems that they experience, including: health, social, economic, psychological and spiritual (12). Aging is the body's stage in reaching its maximum point after that the body shrinks due to reduced cells in the body as a result of which the body will experience a gradual decline in function. The body's response to external stimuli will also decline, resulting in a progressive loss of resistance to infection and the accumulation of metabolic and structural abnormalities known as degenerative illnesses (13). The aged will suffer from a variety of degenerative ailments, including hypertension, diabetes, gout, stroke, and atherosclerosis.

Based on table 1 as many as 8 respondents (66%) had a family history of gout and 2 respondents (33%) as a risk factor for gout. According to researchers, people with a history of genetic/hereditary hyperuricemia have a 1-2 times higher risk than those who do not have a genetic/hereditary history. Urea acid levels were compared with several genes. The last factor is drugs based on table 5.1 there are 8 respondents (66%) who consume drugs and 4 respondents (33%) do not consume drugs. According to researchers, the use of diuretics (furosemide and hydrochlorothiazide), cytotoxic drugs, pyrazinamide, levodopa, low-dose aspirin, cancer drugs, vitamin B12 can increase the absorption of uric acid by the kidneys. (14)

According to (13) there is a urikinase enzyme in the body that oxidizes uric acid into allotonin, which is easily excreted. If there is a disturbance in the urikinase enzyme due to the aging process, there is an impediment to the disposal of uric acid, causing uric acid levels in the blood to rise. Uric acid is disrupted due to a decrease in renal filtration in the glomerulus of the kidney, decreased excretion in the renal tubules, and increased re-absorption. Considering that two-thirds of uric acid is excreted by the kidneys via urine, impaired kidney function is the most significant barrier to uric acid disposal. Inflammation-related joint pain in Wanasari Kp. is significantly influenced by gender, age, familial history, and drug use, specifically alpurinol, which has been shown to increase uric acid. However, long-term use will result in undesirable adverse effects. In order to reduce uric acid levels in the elderly, nonpharmacological alternatives are required.

Bay leaves and ginger are non-pharmacological herbal medicines that can reduce uric acid levels, apart from cooking spices because of their distinctive aroma, they can also be used for traditional herbal medicines. The use of bay leaves to treat high cholesterol, diabetes, high blood pressure, stomach ulcers (gastritis), diarrhea and gout (15). Chemical Ingredients Salam contains tannins, flavonoids, saponins, polyphenols, alkaloids and essential oils (16), while ginger contains gingerol, shogaol, zingerone and paradol essential oils.

According to Table 2, 12 of the 12 respondents in Wanasari Village, Kp.Utan,

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Cibitung District, Bekasi Province in 2022 had elevated uric acid levels prior to receiving steamed bay leaves and ginger. After receiving a combination of boiled bay leaves and ginger in Wanasari Kp.Utan Village, Cibitung District, Bekasi Regency in 2022, all 12 respondents (100%) experienced a reduction in uric acid levels, as shown in table 3. According to the researchers, this combination of boiled bay leaves and ginger was administered in a dose of 0.36 g/kg of bay leaves, which had been boiled for 15 to 30 minutes, once a day for seven days. This bay leaf decoction contains flavonoid compounds that function as antioxidants and diuretics, inhibiting the action of xanthine oxidase from hypoxanthine to xanthine before it is converted into uric acid and increasing the quantity of uric acid excreted from the blood. urine (17).

While ginger can provide comfort to respondents because of the content in ginger while ginger contains gingerol, shogaol, zingerone and paradol essential oils which give a warm feeling. Ginger works directly on the central nervous system where it causes the release of endorphins which can cause vasodilation so that it can increase blood flow to the joints and can inhibit the synthesis of prostaglandins which work as indicators of pain.

According to the findings of a study of 12 respondents conducted prior to the administration of a bay leaf and ginger decoction, there were 12 respondents (100%) with elevated uric acid levels in the elderly. As many as 12 respondents (100%) saw a drop in uric acid levels in the elderly after 7 days of receiving a mixture of boiling bay leaves and jehe. The results of statistical analysis table 4 were p value = 0.000 0. 05 with the help of SPSS 26, indicating that there is a combination effect of giving boiled bay leaves and ginger on reducing uric acid levels in the elderly in Wanasari Village Kp.Utan, Cibitung District, Bekasi Regency in 2022.

CONCLUSION

Based on the results of the study on the effect of the combination of giving boiled bay leaves and ginger on reducing uric acid levels, the following can be concluded: Analysis of the combination of giving boiled bay leaves and ginger was given once a day in 1 week by 12 respondents; there was a decrease in uric acid levels in the elderly by 12 respondents (100%); there is a combination effect of giving boiled bay leaves and ginger on reducing uric acid levels in the elderly i.e.

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