

Original Article

Effectiveness Of Raw White Under Consumption On Decreasing Hypertension In Elderly

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ABSTRACT

Background: Hypertension is often referred to as a "silent killer" (Stealth Killer) because often hypertension sufferers increase in years no one has a problem or complication and without realizing it the patient has been complicated on vital organs such as the brain or kidney disease. Objective To find out whether there is Effectiveness of Raw Garlic Consumption on Decreasing Hypertension in the Elderly in the Binontoan Health Center Work Area.

The design used in the study was a pre-experimental post-test pretest. Population is All Seniors in the Binontoan Health Center Work Area. A large sample of 67 respondents. Using the Independent Variable Purposive sampling technique. The dependent variable is blood pressure. Data was collected using a questionnaire, then the data were analyzed using paired tests with a significance level of $\alpha \leq 0.05$.

The results showed that nearly half of the respondents had severe hypertension before the intervention as many as 33 respondents (49.3%), moderate hypertension with age > 65 years as many as 20 respondents (29.9%). severe hypertension with female gender as many as 21 respondents (31.3%). moderate hypertension after intervention as many as 42 respondents (62.7%). severe hypertension with elementary education as many as 16 respondents (23.9%). severe hypertension by not working as many as 16 respondents (23.9%). have severe hypertension with no disease as many as 24 respondents (35.8%). The statistical test in this study used the Wilcoxon test with a <0.05 obtained p = 0,000 where H1 was accepted and H0 was rejected which means that there is an effect of Raw Garlic Consumption on Decreasing Hypertension in the Elderly in the Binontoan Community Health Center Working Area

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Introduction

Chronic disease is defined as a medical condition or health problem related to symptoms or disabilities that require long-term management¹. Various programs and

efforts have been made but the control of non-communicable diseases has not been satisfactory. Heart and blood vessel disease including hypertension is one of the non-



communicable diseases which tends to become a major public health problem through the infectious disease itself. Hypertension has become a deadly disease in many developed countries and has developed over the last eight decades.

Hypertension is often referred to as the "silent killer" because most people with hypertension often do not feel any disturbance or symptoms for years and without realizing the patient has experienced complications in vital organs such as the heart, brain and kidneys. Symptoms due to hypertension such as dizziness, vision problems, headaches often occur when hypertension is advanced when the blood pressure has reached a significant number. Hypertension that occurs for a long time and continuously can trigger a stroke, heart attack, heart failure, and is a major cause of chronic kidney failure³. Community health centers have elderly health programs such as the integrated elderly service post.

The prevalence rate of 6-15% in adults, as a degenerative process, of course hypertension is only found in the adult group the tendency to increase the prevalence of hypertension according to increasing age. As many as 50% of patients do not realize themselves as hypertension sufferers, therefore they tend to suffer more severe hypertension because they do not try to change and avoid risk factors, as many as 70% of mild hypertension, therefore complaints of hypertension are ignored until they become malignant (Malignant Hypertension), As many as 90% of essential hypertension, those with hypertension are not known the ins and outs of the cause. meaning that because the cause is unclear it is difficult to find forms of hypertension and appropriate treatment.

World Health Organization (WHO) In 2017 there were 1 billion people suffering from hypertension³. Data from the Ministry of Health on the prevalence of hypertension in Indonesia is 34.1%³. Life expectancy for the elderly in Indonesia in 2017 is high at 9.03% or reaching 23.66 million. Based on data from the Central Sulawesi Provincial Health Office, the prevalence of hypertension was 8% in 2018,

Tolitoli District 4699 new cases were found out of 223. 318 people (Rinkesdas, 2018) and in 2017 new cases of hypertension were 3067 out of 225. 875 people, and for the discovery of new cases of hypertension sufferers in the Binontoan Community Health Center, 417 out of 12816 people (2017). The results of a preliminary study at Binontoan Health Center found hypertension patients as many as 371 people, the average hypertension sufferer in the elderly was 87 patients with complaints of dizziness, neck pain and stiffness, the problem found was that hypertension in elderly hypertension did not decrease much despite attending treatment at the center public health.

Hypertension is not yet known the exact cause, but found several risk factors that can cause high blood pressure, namely old age, a history of high blood pressure in the family, hypertension is clarified to be mild to moderate. Besides the increase in blood pressure is also influenced by how many risk factors include age, sex, overweight followed by lack of physical activity, diet (excessive consumption of fatty foods and high salt content), living habits such as smoking and drinking alcohol. . For those who have these risk factors should be more vigilant and earlier in making preventive efforts, for example the simplest is routine blood pressure control more than once, and try to avoid the factors that trigger hypertension. Indonesia with a lower level of health awareness, the number of patients who are unaware that they are suffering from hypertension and do not comply with medication is likely to be greater⁵.

Pathological conditions require treatment or therapy namely nonpharmacological therapy and pharmacological therapy⁶. Non-pharmacological therapy is without therapy using drug agents in the treatment process while pharmacological therapy uses drugs or compounds which in their work can affect blood pressure. Pharmacological therapy grouping that is used to control blood pressure in hypertensive patients is angiotensin converting enzyme (ACE) inhibitors, angitensin receptor blockers (ARBs), beta blockers, calcium channel blockers, direc renin



inhibitors, diuretics, vasodilators⁷, while non-pharmaceutical receptor blockers include lifestyle modification including beta blockers, calcium channel blockers, direct renin inhibitors, diuretics, vasodilators⁷, whereas nonpharmacological handling include lifestyle modification including beta blockers, calcium channel blockers, direct renin inhibitors, diuretics, vasodilators. Stress and anxiety management is a rare first thing to do besides reducing obesity, creating relaxation and reducing salt intake⁵.

Non-pharmacological therapy should be given to all primary hypertension patients with the aim of lowering blood pressure and controlling risk factors and other accompanying diseases. Non-adherence to lifestyle modification namely alcohol consumption, weight control including stress and anxiety control is one of the causes of resistant hypertension. Management of hypertension can be done in hospitals, Puskesmas, Posyandu and clinical practice of health workers, however the rate of hypertension is still high, which is the second highest number of diseases. From the results of research it is known that Imelda (2013) that garlic has antihypertensive, hypolipidemic, antineoplastic and antimicrobial effects⁸. The mechanism of reducing blood pressure by giving garlic is through the general description of Nitric Oxide (NO) through the vasodilation effect by NO. Garlic contains arginine which can increase NO synthesis through nitric oxide synthase (NOS). Giving garlic can increase NO production and decrease blood pressure. Based on the background on the previous page, the researcher intends to conduct a study entitled "The Effectiveness of Consumption of Raw Garlic Against Hypertension Reduction in the Elderly in the Binontoan Health Center Work Area"

Method

The design used in this study was pre-experiment pretest post test. The population is all elderly in the working area of Binontoan Community Health Center. The sample size was

67 respondents using purposive sampling technique. The independent variable of the study was the consumption of raw garlic. The dependent variable is blood pressure. Data were collected using a questionnaire, then data were analyzed using Paired test with a significance level of $\alpha \leq 0.05$

Results

Table 1. Distribution of Frequency of Respondents based on blood pressure before the intervention in the Binontoan Community Health Center on 7 January-7 February 2019 (n = 67)

No	TD Before	Frequency	Percentage
1	Mild hypertension	4	6,0
2	Moderate hypertension	30	44,8
3	Severe hypertension	33	49,3
Total		67	100

The results showed that almost half of respondents had severe hypertension before the intervention as many as 33 respondents (49.3%).

Table 2. Distribution of Respondent Frequencies based on Blood Pressure after intervention in the Binontoan Community Health Center working area from January 7 to February 7, 2019 (n = 67)

No	TD After	Frequency	Percentage
1	Normal	6	9,0
2	Mild hypertension	18	26,9
3	Moderate hypertension	42	62,7
4	Severe hypertension	1	1,5
Total		67	100

The results showed that the majority of respondents had moderate hypertension after the intervention of 42 respondents (62.7%).



Table 3. Test Statistics

	TD_After - TD_Before
Z	-6,881 ^a
Asymp. Sig. (2-tailed)	,000

a. Based on positive ranks

b. Wilcoxon Signed Ranks Test

The statistical test in this study used the Wilcoxon test with a <0.05 obtained $p = 0.000$ where H_1 was accepted and H_0 was rejected, which means that there is an influence of Raw Garlic Consumption Against Hypertension Reduction in the Elderly in the Binontoan Health Center Work Area.

Discussion

The statistical test in this study used the Wilcoxon test with a <0.05 obtained $p = 0.000$ where H_1 was accepted and H_0 was rejected, which means that there is an influence of Raw Garlic Consumption Against Hypertension Reduction in the Elderly in the Binontoan Health Center Work Area.

Garlic (garlic), known as a spice, has an antihypertensive effect that can be proven by medical research.²⁷ Garlic's antivasospastic effect can reduce spasm of small arteries and prevent the formation and development of blood clots. Garlic also has antimicrobial, anticarcinogenic, and hypolipidemic effects. At present, many garlic products are marketed, such as garlic essential oil, garlic oil macerate, garlic powder, and aged garlic extract⁸. The effective dosage of using garlic for adults is 4 grams (one to two cloves) of raw garlic per day for 5 days⁸. The efficacy of garlic in preventing various diseases has long been a concern of scientists. Aside from being an anticancer, it turns out

garlic is also able to cope with high blood pressure (hypertension). Doctors in Austria recommend garlic as an addition to medical drugs for hypertensive patients. They have conducted trials on 50 hypertensive patients to take garlic supplements, while also continuing to take medical drugs. The patients who received four capsules of garlic extract every day had lower blood pressure compared to patients who received placebo pills (pills that did not have active substances). Previously, research has also proven that garlic extract is effective in reducing cholesterol levels and high blood pressure in untreated hypertensive patients.

Based on the results of the study showed that there is an influence of Raw Garlic Consumption Against Hypertension Reduction in the Elderly in the Binontoan Health Center Work Area. Garlic contains more than 200 chemical components. Some of which are important are volatile oils containing sulfur (allicin, alliin, and ajoene) and enzymes (allinase, peroxidase, and myrosinase). This is very beneficial for the elderly with hypertension to reduce blood pressure. Hypertension is a major risk factor for cardiovascular disease, so a decrease in blood pressure will significantly reduce the risk of cardiovascular events. Giving garlic (Aged Garlic Extract 2.86 g / kg orally) can increase NO production by 30-40% after 15 to 60 minutes of garlic administration. Conversely, NO deficiency can cause hypertension in mice that previously had normal blood pressure. Endothelial dysfunction, which is caused by decreased bioavailability of nitric oxide (NO), is an important risk factor for hypertension and cardiovascular disease. The evidence



shows that NO plays a major role in blood pressure regulation; NO bioactivity disorders can cause arterial stiffness, which is a cause of hypertension. General description of Nitric Oxide is through vasodilation effect by NO. NO is an important mediator in blood pressure homeostasis, because it has several physiological functions in the cardiovascular system. Garlic is reported to contain arginine which can increase NO synthesis through nitric oxide synthase (NOS). Giving garlic is very effective in reducing blood pressure in the elderly with hypertension.

Conclusion

1. The results showed that most respondents had severe hypertension before the intervention as many as 33 respondents (49.3%).
2. The results of the study found that the majority of respondents had moderate hypertension after the intervention of 42 respondents (62.7%).
3. The statistical test in this study uses the Wilcoxon test with a <0.05 obtained $p = 0,000$ where H_1 is accepted and H_0 is rejected which means that there is an effect of Consumption of Raw Garlic Against Hypertension Reduction in the Elderly in the Binontoan Health Center Work Area.

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