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Case Study: Giving Garlic Brought Therapy Towards Reducing Blood Pressure In Hypertension Patients In The Working Area of Puuwatu Health Center, Kendari City

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Abstract. Hypertension is a disease that is feared by many people because it can cause complications. Treatment of hypertension can be done by consuming herbal plants, can be made yourself and the ingredients are easily obtained at cheap and affordable prices, rarely cause side effects, one of which is the therapy of steeping garlic water as a natural medicine for lowering blood pressure which is known to contain allicin compounds which are efficacious to destroy formation of blood clots in the arteries thus effectively lowering blood pressure. This study aims to provide an overview of giving garlic water steeping therapy to reduce blood pressure in patients with hypertension. It is a descriptive research with a case study approach. The research subjects were 15 people with hypertension and taken by purposive sampling. The results showed that there was a decrease in blood pressure in the subjects after being given infusion of garlic water for 6 consecutive days. Families and the public can know that by drinking steeped garlic water when blood pressure increases, it can reduce blood pressure in people with hypertension.

Introduction

Hypertension is a condition of increased blood pressure that can lead to continued complications or cause more severe damage, namely stroke, coronary heart disease (damage to the heart's blood vessels), and left ventricular hypertrophy (occurs in the heart muscle), and kidney failure¹.

Many people do not know this when there is an attack of hypertension and is considered a normal thing. Proper management of hypertension is needed to prevent complications. Non-pharmacological hypertension therapy is a therapy that does not use drugs or compounds that work to affect blood pressure. Hypertension treatment that is usually done by the community

is consuming herbal plants which are believed to be able to lower blood pressure because they can be made by family members and the ingredients are easy to obtain, causing less side effects. , and obtained at a more economical price, one of which is by steeping garlic water therapy².

Garlic (*Allium sativum* L) has several benefits for the body, namely high blood pressure can decrease because it has active compounds that can affect the availability of ions for smooth muscle contraction of blood vessels from the ajoene group³.

Every year there is an increase in cases of hypertension which is expected to increase by 2025. More at the age of 55-64 years⁴. The non-communicable disease that has the highest prevalence diagnosed in health facilities is

hypertension with the number of cases reaching 185,857. In Indonesia at the age of 18 years, 34.1% with the highest sufferer in South Kalimantan at 44.1%, while for Southeast Sulawesi, it ranks 16th highest with 28.7%. The prevalence of hypertension in women tends to be higher and in urban areas tends to be higher than in rural areas⁵.

Based on information, in Southeast Sulawesi, data obtained from visits to service units such as Puskesmas and their networks, from 160,975 people or 12% of the population aged 18 years and over, blood pressure measurements were taken, as many as 54,127 people or 33.62% had hypertension. Based on gender, hypertension was more common in men, namely 45.61%, compared to 30.21% in women. This data was collected from 17 districts/cities, so that the data can be used as a reference for the description of hypertension cases in Southeast Sulawesi, the percentage of which is still above the national prevalence.

An efficient way is needed by doing self-therapy at home, namely the therapy of giving steeped garlic water to lower blood pressure, because so far the intervention that is often found is taking medication for the patient's blood pressure to drop, but we know the effect is not good on the body's organs if it is consumed for a long time.

METHODS

The design of this research is descriptive with a case study approach that aims to provide an overview of the administration of garlic water steeping therapy for reducing blood pressure in Hypertensive Patients in the Puuwatu Health Center Work Area, Kendari City. This research was conducted in July 2020. The population in this study was 37 people with hypertension in the Puuwatu Public Health Center Working Area, Kendari City. The sampling technique was carried out by purposive sampling in accordance with the inclusion criteria, so that the number of samples in this study amounted to 15 respondents.

The instruments in this study were a blood pressure measuring device (tensimeter), observation sheets and SOP sheets of garlic water stew. Data analysis with univariate analysis to describe the frequency distribution of Blood Pressure in Hypertensive Patients.

RESULTS AND DISCUSSION

Subjects were determined as subjects for measuring blood pressure based on research criteria where the person concerned was willing to be a respondent and was not taking blood pressure-lowering drugs and the patient had long suffered from hypertension since 4 to 11 years ago due to an unhealthy lifestyle, lack of exercise and consuming high blood pressure levels. excessive salt and thought factors. The main complaint of the client is that the client complains of headaches and tension in the back of the neck. The intervention was carried out for 6 consecutive days.

Table 1. Demographic Data of Hypertension Patients in the Work Area of Puuwatu Public Health Center, Kendari City

No.	Initials	Age (y.o)	Education	Occupation
1.	Mrs. H	52	Elementary School	Entrepreneur
2.	Mrs. N	49	Senior High School	Housewife
3.	Mrs. S	45	Senior High School	Housewife
4.	Mr. A	69	Academy/ University	Pension
5.	Mrs. M	59	Elementary School	Housewife
6.	Mrs. J	65	Elementary School	Housewife
7.	Mrs. P	67	Elementary School	Housewife
8.	Mr. M	45	Senior High School	Farmer
9.	Mr. S	63	Junior High School	Farmer
10.	Mr. H	66	Elementary School	Farmer
11.	Mr. S	62	Junior High School	Farmer
12.	Mrs. B	65	Junior High School	Housewife
13.	Mr. W	60	Senior High School	Farmer
14.	Mr. S	45	Senior High School	Farmer
15.	Mrs. I	65	Elementary School	Housewife

From the table above, there are 6 people with hypertension under the age of 60 years which are included in the old adult age category. The highest level of subject education is elementary school and only 1 person has an undergraduate education and as many as 7 people have jobs as housewives.

Tabel 2. Distribution of Blood Pressure Frequency in Hypertensive Patients in the Work Area of Puuwatu Health Center Before and After Giving Garlic Water Stew

Initials	Intervention	Results blood pressure (mmHg)	
		Pre	Post
Ny. H	First day	170/90	160/90
	Last day	130/80	120/90
Ny. N	First day	160/100	160/90
	Last day	140/90	130/80
Ny. S	First day	160/100	150/90
	Last day	130/90	120/80
Tn. A	First day	160/100	150/100
	Last day	130/90	130/80
Ny. M	First day	160/90	150/90
	Last day	130/80	120/90
Ny. J	First day	170/110	170/90
	Last day	140/90	130/80
Ny. P	First day	160/100	150/100
	Last day	140/90	130/90
Tn. M	First day	160/90	150/90
	Last day	140/90	130/90
Tn. S	First day	180/100	170/100
	Last day	150/100	140/90
Tn. H	First day	160/90	150/90
	Last day	130/90	120/90
Tn. S	First day	150/90	150/80
	Last day	130/80	120/80
Ny. B	First day	170/90	160/100
	Last day	140/90	120/90
Tn. W	First day	160/90	150/80
	Last day	130/80	120/80
Tn.S	First day	150/90	150/80
	Last day	130/90	120/90
Ny. I	First day	180/100	170/90
	Last day	140/90	130/90

The results showed that after being given the infusion of garlic water for 6 consecutive days as much as 200 CC/day, the post-test blood pressure on day 6 decreased by 10-30 mmHg systolic blood pressure and 10-20 mmHg

diastolic blood pressure. However, there are also some respondents who have blood pressure only a decrease in systolic pressure and some in diastolic pressure.

Garlic contains the compound allicin which is effective in destroying the formation of blood clots in the arteries so that it can lower blood pressure. In addition to allicin, garlic also contains hydrogen sulfide, high intracellular ion concentrations cause vasoconstriction which has an impact on the occurrence of hypertensive conditions. Thus, there will be a decrease in intracellular ion concentration and followed by muscle relaxation, this can cause blood vessel dilation and make blood vessels not stiff, so blood pressure drops. Garlic can improve lipid profile balance, affect blood pressure, inhibit platelet function, antioxidant and fibrinolytic activity⁶. Increased blood pressure is caused by factors such as physical exercise, stimulants (substances that accelerate body functions), food, gender, emotional stress (anger, fear, and sexual activity), heredity, pain, obesity, age, and blood vessel conditions⁷.

After giving garlic water, blood pressure decreased in subjects, this is in line with research conducted by Dina Riski Hevtyardah and Raisa Farida Kafil (2018) which showed a decrease in blood pressure. This is because garlic contains the compound allicin which is effective in destroying the formation of blood clots in the arteries, reducing diabetes symptoms and reducing blood pressure. also the effect of blood vessels can be enlarged and not stiff. The results of the study found systolic blood pressure in the intervention group had an average of 153 mmHg and diastolic and 91 mmHg before being given garlic steeping as much as 200 cc/day then after being given garlic steeping it had an average of 128 mmHg and 82 mmHg. The difference obtained in the systolic decreased significantly by 25 mmHg, and the difference in diastolic found a decrease of 9 mmHg⁸. The results of research conducted by Sofilina Nufita Setianti and Cemy Nur Fitria (2018) stated that there was a decrease in blood pressure in hypertensive patients after giving garlic boiled water. The average systolic value is 173.33 and after the treatment by consuming garlic steeped water, the average systolic value is 145.33. There was a decrease in blood pressure with an average systolic difference of 33.03 and an average diastolic value of 102.67 and after giving treatment by consuming garlic steeped water, the average diastolic value was 77.67. Another study

by Mohanis (2015) Before giving garlic steeping, the systolic was 165.33 mmHg and the diastolic was 96.66 mmHg. The average blood pressure in the elderly with hypertension after giving garlic steeping is 154 mmHg systolic and 94 mmHg diastolic⁹.

The action given to the subject was accepted with information related to the benefits of giving steeped garlic water, so the researchers recommend steeping garlic water as an herbal drink that can be consumed when blood pressure increases which serves as an alternative to non-pharmacological treatment to reduce hypertension.

CONCLUSIONS

Giving infusion of 200 cc of garlic water/day for 6 consecutive days can reduce high blood pressure in the working area of Puuwatu Public Health Center, Kendari City.

SUGGESTIONS

It is hoped that families and the community can drink steeped garlic water when blood pressure increases in patients suffering from hypertension.

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