CELERY JUICE PLUS GRAPES TO LOWER HYPERTENSION

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ABSTRACT

Background: Hypertension can occur at all age levels and genders, especially in married women of childbearing age. There are two ways of therapy that can be done to prevent or reduce hypertension, namely pharmacologically and non-pharmacology. The use of chemical drugs often causes side effects such as *bronchospasm, insomnia*, worsening peripheral vascular disorders, *hyper triglycerides*, and others. Non-pharmacological treatment or complementary medicine has been known among the public. As a therapy to treat hypertension, celery. (*Apium graveolens* L) in great demand by the public because it is very easy to get, low cost and does not cause dangerous side effects. Celery very popular as ingredients for vegetable soups and many other menus. Celery. Red wine and cucumber are known to have benefits and are often chosen as alternative medicines. These properties have been known in various places for a long time.

Objective: To Determine the Difference in the Effectiveness of Celery Leaf Juice Plus Red grapes with Cucumber Juice in Reducing Hypertension in Women of Childbearing Age

Methods: Pretest-Posttest control group design *research*. Respondents were women of childbearing age, who had hypertension. The number of samples needed is calculated based on the formula according to Lameshow amounting to 30 people in each group. Purposive determination of the sample.

Results: There was a difference in the mean blood pressure of both systole and diastole between pre-intervention and post-intervention in the administration of celery juice plus grapes to lower blood pressure

Key word : Hypertension; Celery; Grapes

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INTRODUCTION

Based on data WHO, in the world around 972 million people (26.4%) have hypertention, this figure will increase to 29.2% in 2025. Of the 972 million people with hypertension, 333 million are in developed countries and the remaining 639 are in developing countries, including Indonesia.[1,2], is also still the main cause of death in mothers and also has various other serious effects at the time of childbirth. For this reason, the treatment of hypertension in women of childbearing age is very importance so that cases of Hypertension in Pregnancy (HDK) can be prevented[3]. According to the profile of the Karawang Regency Health Office, there were 38,851 cases of hypertension (18.3%) and 23,383 people with hypertension in women. The number of maternal deaths due to hypertension in pregnancy is 30%[4] .

The high prevalence of hypertension in the world certainly makes more and more chemical drugs created for hypertension therapy. In addition to taking a long time, complications caused by hypertension will also require expensive costs to handle. Recently, various studies on hypertension have been developed, one of which is using medicinal plants. According to research, medicinal plants have been proven from generation to generation as a natural therapy that has been equipped with laboratory research [5].

Medicinal plants (traditional medicine) are natural ingredients that are safer and can extend life, including celery. This plant thrives in lowlands up to 900 m above sea level. In general, celery is better known by the public as a vegetable that is used for various types of cuisine, including soup vegetables [6].

The results of the research by Suryarinilsih, Fadriyanti and Hidayattullah H (2021) show that the situation in the respondents is in accordance with the existing theory that celery can lower blood pressure and in the results of this research it has been proven that there is an effect of celery decoction on lowering blood pressure in hypertensive patients [7]. Efforts to improve the safety and efficacy of traditional medicines are also supported by WHO. This is because the side effects of using traditional medicine are relatively less compared to modern medicine (chemical medicine). Celery are quite safe although there are still contraindications that must be considered and the use of celery for self-medication for mild hypertension with the supervision of health workers and how to use it can be socialized through promotive activities [8,9].

METHODOLOGY

This study uses *a Quasy experiment* design with a *Pretest-Postest design controlled by the Design Group*. In this draft, the grouping of members of the intervention group and the control group. The intervention group was given celery leaf juice and grapes twice a day for 2 weeks with a ratio of 50 grams of celery and 4 medium-sized grapes in 200 ml of water. Meanwhile, the control group was given 50gram cucumber servings of cucumber juice in 200 ml of water. Samples were purposive. The sample number was 30 respondents in each group. with inclusion criteria, namely women of

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childbearing age who have hypertension, have no previous history of hypertension and are not currently taking medications. Before the intervention, blood pressure was measured and a history of chronic hypertension. Sampling was carried out from June 2024 to August 2024. Analysis using dependent t tests was carried out in paired groups, if the data distribution was normal to determine the difference in blood pressure after the intervention.

RESULT

Table 1 : Distribution of data on respondent characteristics in the intervention group. In West Karawang. Year 2024

Respondent Characteristics	Intervention Groups		Control Group	
	Frequency	%	Frequency	%
Age:				
20 – 35 Years	11	36,7	17	56,7
36 – 50 Years	19	63,3	13	43,3

The age of the most respondents was between 36 – 50 years old at 56.7% and the highest level of education was high school/equivalent at 73.3%

Table 2 : Data Distribution Mean values of pre and post-intervention systole blood pressure. In West Karawang in 2024

Systolic pressure	**Average**		**SD**		**P value**		**t**	
	Kel. Intervention	Control	Kel. Intervention	Control	Kel. Intervention	Control	Kel. Intervention	Control
Pre-intervention	148,17	143,50	6,226	8,320	0,000	0,033	10,979	6,265
Post intervention	135,67	137,67	5,561	7,279				

The results of the analysis in the intervention group were obtained that the average systolic blood pressure at pre-intervention was 148.17 with a standard deviation of 6.226. In the intervention post measurement, an average systolic blood pressure was 135.67 with a standard deviation of 5.561. The t-value was obtained at 10.979. The results of the analysis were known to have a p value of 0.000. A significant difference in the mean value of systolic blood pressure was found between the pre-intervention and the intervention post in the intervention group. While in the control group from the analysis, the p value was known to be 0.033, so it can be concluded that there is a significant difference in the mean value of systolic blood pressure between the pre-intervention and the intervention post

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Table 3 : Data Distribution Mean value of Diastole blood pressure pre and post intervention. In West Karawang. Year 2024

Diastole Pressure	Average		SD		P value		t	
	Kel. Intervention	Control	Kel. Intervention	Control	Kel. Intervention	Control	Kel. Intervention	Control
Pre-intervention	93,83	90,67	5,363	5,979	0,000	0,000	6,665	5,076
Post intervention	85,00	84,50	5,085	6,067				

In the intervention group, the average pre-intervention diastole blood pressure value was 93.83 with a standard deviation of 5.363. The intervention post measurement obtained an average diastole blood pressure of 85.00 with a standard deviation of 5.085. The t-value was obtained at 5.076. The results of the analysis were known to have a p value of 0.000, so it can be concluded that there is a significant difference in the average value of diastole pressure between the pre-intervention and the intervention post. While in the group the t-value was obtained as 5.076, with a p value of 0.000, it can be concluded that there is a significant difference in the mean value of diastole pressure between the pre-intervention and the intervention post

Discussion

Information bias that may occur because monitoring and monitoring the implementation of interventions is carried out with WhatsApp group videos, so that respondents can close that some people take anti-hypertensive drugs even though they have been informed in advance so as not to consume them. The researcher tries to minimize these shortcomings or weaknesses through reports in the form of photos or videos of respondents meshing and while drinking the juice given.

The results of the analysis in the intervention group using the dependent t test were found to be a significant difference in the mean systolic blood pressure and diastole blood pressure, the results of the analysis were known to be p value 0.000, so it can be concluded that there was a significant difference in the mean value of systolic blood pressure between the pre-intervention and the intervention post in the intervention group

The results of the study are in line with the research of Rania Putri Ananda (2022), it is known that the average blood pressure of systole and diastole after being given celery decoction has decreased and the test results obtained a p

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value of 0.000, meaning that there is an average difference in systole and diastole pressure between before and after being given celery decoction water [10].

The administration of celery leaf decoction has an effect on reducing blood pressure in people with hypertension. This is proven by Huwae et.al, (2021)[11], the results of the study showed that after being given celery leaf boiling water, there was a decrease in systolic pressure.

Similar research conducted by Cemy Nur Fitria[12], the results were known to have an effect of giving celery leaf decoction water on reducing high blood pressure in hypertensive patients, the results of the Wilcoxon test obtained a value of p = 0.001. This research is also supported by systematic review research by La Ode Arlifarki and Wa Ode Salma which found a decrease in systolic and diastole in patients who drank celery leaf decoction[13]. Dian Fatmawati (2020), find The mean value of Mean Atrial Pressure pre-intervention of celery leaf decoction was 84.62 mmHg with a Standard Deviation = 6.171. Mean Atrial Pressure after intervention was 75.92 mmHg with Standard Deviation = 5.056. The results of the study showed that there was an effect of giving celery decoction leaves on the Mean Atrial Pressure on Systolic, showing that there was an effect of celery leaves on the decrease in Mean Atrial Pressure (p value 0.000)[14]

Kartika Dewi's research showed that the administration of an extract from celery ethanol resulted in a decrease in blood pressure. Respondents were given celery ethanol extract in the form of capsules for one week with a dose of 1x550mg which is equivalent to 5.5g of dried celery. The results of this study showed that there was a decrease in systolic blood pressure by 6.62 mmHg, while diastolic blood pressure decreased by 4.59 mmHg. This proves that celery ethanol extract can have an effect on lowering blood pressure[15].

In contrast to the research of Desak Putu Pratiwi, I Wayan Gede Sutadarma, I Wayan Surudarma, that there is no significant relationship between celery consumption patterns (*Apium graveolens L*.) on the reduction of systolic blood pressure in students of the Faculty of Medicine, Udayana University (p=0.259), both systolic blood pressure and diastolic blood pressure (p=0.324). So it can be concluded that celery consumption patterns are not related to student blood pressure[16]. Celery contains potassium which plays a role in attracting extracellular fluid and occurs to increase intracellular fluid. As a result, there will be a change in the balance of sodium and potassium pumping which can cause a decrease in blood pressure, disrupting the balance of sodium is one of the strategies in lowering blood pressure. Celery functions as an anti-oxidant, anti-hypertensive, anti-inflammatory and calculus[17,18]. Compared to the administration of cucumber juice, celery decoction is more effective in determining blood pressure, from the results of the independent pre and post-tests, a p value = 0.000 was obtained[19]. The potassium content in 100-grams of fresh grapes is 192mg, or can meet 5% of the potassium requirement per day[20]. Hanifah Putri found that after giving cucumber juice for 7 days, she got an average systole of 121.82 mmHg from the previous 145.45 mmHg, with a deviation of 6.76. The average diastole was 71.2.2.mmHg from the previous 82.82 mmHg[21]. In 100 grams of cucumber contains 136 mg of potassium [22].

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Potassium plays a role in regulating heart function by regulating fluid in cells. This is what causes a drop in blood pressure. Celery and grapes, which are turned into juice, certainly contain higher potassium compared to cucumbers. This combination makes the process of blood thinning and fluid transfer as well as the disruption of the balance of sodium and potassium in the blood, resulting in a more significant decrease in blood pressure. In addition, the combination of grapes and celery is easier to consume than just celery juice, the sweet and sour taste in grapes can reduce the langue taste caused by celery. This difference in potassium content can lead to a difference in blood pressure drops. Grapes and cucumbers are rich in amino acids that function in relaxing blood vessels.

Conclusion

Based on the results of the study, it was concluded that there was an average difference between pre-intervention and post-intervention in the administration of celery leaf juice plus red grapes with cucumber juice, to reduce blood pressure. The use of celery juice and red grapes is better as a choice of hypertension-lowering drinks in women compared to cucumber juice.

Suggestion

Celery leaf juice plus red grapes can be used as an herbal medicine for hypertension patients because hypertension is a disease that many people suffer from in Indonesia.

The use of celery leaf juice plus red wine can be socialized through promotive activities at the elderly health service post activities while remaining under the supervision of health workers

Further research can be carried out with experimental method research over a certain period of time to be able to see the effect on blood pressure.

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