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Research Article

The Effect of Noni Juice with Ambon Banana on Blood Pressure Reduction in Family with Hypertension Disease in East Jakarta

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Abstract

Introduction: Hypertension is an increase in blood pressure above 140/90 mmHg into a serious medical condition that can increase the risk of heart disease, and brain and kidney disease. It is estimated that 1.13 billion people worldwide suffer from hypertension, mostly about 2/3 live in low- and middle-income countries. This disease causes an increased risk of stroke, aneurysm, heart failure, heart attack, and kidney damage. To control blood pressure, you can use natural medicine, namely noni juice with Ambon banana which contains soranjidiol, which acts as a urinary laxative and has pharmacological and diuretic properties because of its water content. which helps lower blood pressure. And potassium in Ambon banana can help lower blood pressure.

Objective: This study was to determine whether noni juice with Ambon banana affects lowering blood pressure.

Methods: This research method uses a quasi-experimental design by comparing blood pressure before the intervention and after the intervention. The hypothesis test used is a two-mean independent test and a dependent sample t-test with a total sample of 25 interventions and 25 controls. Sampling using a non-probability sampling technique, namely purposive sampling. Data collection tools used interviews to obtain demographic data and direct measuring tools used were a sphygmomanometer and observation sheet.

Results: Before consuming Ambon noni-banana juice, the respondents' average blood pressure was 164/92 mmHg and after consuming Ambon noni-banana juice, the respondents' average blood pressure was 133/85 mmHg. Before the intervention, 60% of respondents suffered from stage 2 hypertension and 40% of respondents suffered from stage 1 hypertension. After consuming Ambon noni-banana juice, no more respondents had stage 2 hypertension, 43% of respondents had stage 1 hypertension, and 57% of respondents suffered from hypertension. pre hypertension. Based on the test results obtained p-value 0.000 <0.05, which means that the Ambon noni-banana juice affects lowering systolic blood pressure.

Conclusion: People with hypertension can consume Ambon banana noni to lower blood pressure, as an alternative treatment.

Keywords: hypertension, blood pressure, noni, ambon banana.

Introduction

Hypertension is an increase in blood pressure above 140/90 mmHg into a serious medical condition that can increase the risk of heart disease, and brain and kidney disease. It is estimated that 1.13 billion people worldwide suffer from hypertension, mostly about 2/3 live in low- and middle-income countries. This disease causes an increased risk of stroke, aneurysm, heart failure, heart attack, and kidney damage.^{1,2} Uncontrolled hypertension can be treated with Ambon Noni-Banana Juice therapy. Noni fruit contains ethanol which can have the effect of lowering blood pressure, lowering heart rate. Megkudu fruit also contains scopoletin which can function to widen narrowed blood vessels and lower blood pressure.^{3,4}

Noni fruit also contains soranjidiol which acts as a urinary laxative and has pharmacological and diuretic properties due to its high water content, which helps lower blood pressure.⁵ Ambon banana is a fruit that contains high potassium which can cause a decrease in blood pressure, Ambon banana contains many benefits in maintaining a healthy body and can smooth blood flow and all blood vessels will experience vasodilation.^{6,7} The results showed that there was a decrease in blood pressure with Ambon banana = 0.000.⁸ The results of the study drinking noni fruit boiled water can reduce blood pressure = 0.000.⁹ Based on discussions with the head of the Pondok Ranggon village health center, the number of hypertension was still high at around 201 in 2017 data collection and had increased from the previous year, which was 180 patients. This study was to determine whether noni juice with Ambon banana affects lowering blood pressure.

Methods

The approach taken to achieve the research objectives was the Quasy Experiment method by comparing blood pressure before the intervention and after the intervention.¹⁰ The hypothesis test used is a two-mean independent test and a dependent sample t-test using Software R Edition 2 with a total sample of 25 interventions and 25 controls.¹¹ The independent variables in the study of Ambonese Noni-Banana Juice and Blood Pressure. One medium banana can contain about 422 mg of potassium plus half a medium-sized noni fruit with 300 ml of RO water. Give Ambon Banana Noni Juice 2 bottles/day (1 bottle 150 ml). Measurement of blood pressure as the dependent variable using a standardized digital measuring device.^{12,13}

Sampling using non-probability sampling technique, namely purposive sampling with inclusion criteria, namely 50 people who were divided into 2 groups, namely 1 intervention group and 1 control group with inclusion criteria being in the age range of 45-65 years, having systolic blood pressure = 140 mmHg or diastolic = 90 mmHg (hypertension grade 2), not overweight, not smoking, no stomach and intestinal problems, and respondents who do not take hypertension medication.¹⁴ Data collection tools used interviews to obtain demographic data and direct measurement tools used were an aneroid sphygmomanometer (Sphygmomanometer) brand Gea and observation sheets. The ingredients used for the juice are Noni, Ambon Banana, and RO (Reverse Osmosis) Water which is put into a bottle.

The study began by grouping sample members into the experimental group and control group with a non-equivalent control group design or non-randomized control group pretest-posttest design.¹⁵ From the first day until the seventh day the client is given Noni- Ambon Banana Juice, and blood pressure measurement is carried out every day at 07.00 and 17.00 WIB. Measurement on the first day at 06.00 WIB as the result of the pre-test, the measurement on the last day at 17.00 WIB as the result of the post-test. Univariate analysis by describing the characteristics of respondents related to age, gender, education, and occupation. Bivariate analysis is an analysis carried out on two variables that are suspected to be related/correlated. The hypothesis test used is a two mean independent sample t-test and a dependent sample t-test using Software R Edition 2.¹¹

Results

The results of the study on the effect of noni juice with Ambon banana on reducing blood pressure in families with hypertension are illustrated in the following table:

Table 1. Demographic Data of Respondents by Gender, Age, and Occupation

Characteristics		Total	Presents
Gender	Man	32	64%
	Woman	18	36%
Age	Adult	30	60%
	Elderly	20	40%
Occupation	Teacher	3	6%
	Housewife	14	28%
	Merchant	9	18%
	Private Officer	19	38%
	Driver	5	10%

Table 1 describes male respondents as more dominant as much as 32 (64%) and the majority of respondents aged 30 (60%) described the occupation of respondents as being more dominant in the private sector as much as 19 (38%) and minority occupations as teacher respondents as much as 3 (6%).

Based on the results of the statistical analysis of the Paired T-Test on the effect before and after administration of noni juice with Ambon banana on blood pressure reduction, it was obtained as follows:

Table 2. Effect of Noni Juice and Ambon Banana Juice Before and After Intervention

Variable		Mean Difference	P-Value
Noni Juice	Pre-Post	6,5	0.000
Ambon Banana Juice	Pre-Post	2.85	0.000

Table 2 illustrates that there are differences before and after the intervention of noni juice to reduce blood pressure in clients with hypertension ($p < 0.000 < 0.05$). The mean is positive (6,5) there is a tendency to decrease blood pressure after drinking noni juice with Ambon banana, with an average decrease of 6,5. Table 2 also illustrates that there are differences before and after the Ambon banana juice intervention to reduce blood pressure in hypertensive clients ($p < 0.000 < 0.05$). Means positive (2,85) there is a tendency to decrease blood pressure after drinking noni juice with Ambon banana, with an average decrease of 2,85.

Statistical Analysis Independent Sample Test. The effect before and after administration of noni juice with control of Ambon banana juice on blood pressure reduction was obtained as follows:

Table 3. Difference between Noni Juice and Ambon Banana Juice towards Blood Pressure

Variable	Mean Difference	p-value
Noni Juice	11,9	0.000
Ambon Banana Juice		

Table 3 illustrates that there is a significant difference in blood pressure reduction after the administration of juice between the intervention group and the control group ($p < 0.000 < 0.05$). The mean difference is positive (11.9), there is a tendency to decrease

blood pressure after drinking noni juice with an average decrease of 11.9 when compared to Ambon banana juice.

Discussion

Drinking noni juice regularly can lower blood pressure in people with hypertension. The results of this study are in line with other significant studies to lower blood pressure after drinking boiled water of noni fruit can reduce blood pressure = 0.000.⁹ Noni fruit contains ethanol which can have the effect of lowering blood pressure, lowering heart rate. Megkudu fruit also contains scopoletin which can function to widen narrowed blood vessels and lower blood pressure.^{3,4} Noni fruit also contains soranjidiol which acts as a urinary laxative and has pharmacological and diuretic properties due to its high water content, which helps lower blood pressure.⁵

In addition to noni, blood pressure can also be lowered by giving Ambon banana juice. The results of this study are also in line with other significant studies. The results of other studies showed a decrease in blood pressure with Ambon banana = 0.000.⁸ Ambon banana is a fruit that contains high potassium which can cause a decrease in blood pressure, Ambon banana contains many benefits in maintaining a healthy body and can improve blood flow and all blood vessels will experience vasodilation.^{6,7} Potassium is an element that is found outside the cell which amounts to about 2% and functions as a neuromuscular that works by affecting the heart muscle so that it can lower blood pressure.⁸

Of the two ingredients that have the highest effect on reducing blood pressure, namely noni juice when compared to Ambon banana juice. This is because the substances that can help lower blood pressure in noni are more than the substances contained in Ambon banana.³ So that the combination of these 2 ingredients can be more effective in lowering blood pressure, this is also because the mixture of Ambon banana in noni juice can cause an unpleasant odor and taste from the noni fruit.³ Noni juice drink with Ambon banana can be used as an alternative drink of choice by people with hypertension, especially for hypertension sufferers who do not like the smell and taste of the noni fruit, if consumed regularly in daily life can lower blood pressure, this study is the same as other studies. With significant results in decreasing blood pressure with a p-value 0.000 < 0.05.

Conclusion

People with hypertension can drink noni juice with Ambon banana as an alternative treatment to lower blood pressure. Medium-sized noni juice with a mixture of 1 medium-sized Ambon banana with a potassium content of 422 mg plus 300 ml of water, can be directly consumed with a dose of 2 times a day each as much as 150 ml as an alternative option to help lower blood pressure in addition to using chemical drugs. Further research can increase the dose and add more days to the intervention.

Conflict of Interest Declaration

The researcher states that there is no conflict of interest in this study.

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