Journal Of Health Science Community
ISSN: 2714 7789 (print) – 2745 3561 (online)
DOI : https://doi.org/10.30994/jhsc.v3i4.183
Vol.3 No.4 May 2023 Page. 170-175

Effectiveness Of Sweet Star Fruit Juice (*Averhoa Carambola*) On The Reduction Of Blood Pressure In The Elderly With Hypertension At The Jatirejo Karanganyar Elderly Post

Febria Reza Kurnia*, Lingga Kusuma Wardani
Institut Ilmu Kesehatan STRADA Indonesia
***Corresponding author: Febria Reza Kurnia** (febriarezakurnia@gmail.com)

ABSTRACT

Hypertension is a condition where there is a chronic increase in blood pressure in a very long period of time which can cause pain to someone who is suffering and can cause death. A person can be said to suffer from hypertension if the systolic blood pressure is > 140 mmHg and diastolic > 90 mmHg. Treatment of high blood pressure can be done pharmacologically or by using drugs and non-pharmacological therapy or therapy without drugs. Sweet star fruit is useful in helping to lower blood pressure because of the fiber, potassium, phosphorus and vitamin C content. Water content, magnesium and potassium and high fiber in sweet star fruit can neutralize and lower blood pressure. This research uses the method *Pra-Eksperimen One Groups Pretest-Posttest Design.* The research population is all elderly at the elderly post in Jatirejo Village, the research sample is 30 people with techniques *Purposive Sampling.* Based on the research, the average systolic value before the intervention was 150.67 mmHg and the average value in diastole was 97.67 mmHg, after the intervention the average systolic value was 137.33 mmHg and the average value in diastole was 92.67 mmHg. There was a difference in blood pressure after administration of sweet star fruit juice with a p-000 value meaning p <0.05 in systolic and diastolic blood pressure.

Keywords: Elderly, Hypertension, Star fruit Juice.

Received May 5, 2023; Revised May 10, 2023; Accepted May 29, 2023

INTRODUCTION

Elderly is one of the groups or population at risk which is increasing in number. Population at risk (population at risk) is a collection of people who are a problem his health are likely to develop worse due to the presence of risk factors influence The elderly as a risk population have three characteristics of health risks, namely, biological risks including age-related risks, social and environmental risks as well as risk behavior or lifestyle (Stefanus et al, 2018).

Hypertension is a condition where there is a chronic increase in blood pressure over a very long period of time which can cause pain to someone who is suffering and can cause death. Hypertension comes from the Latin which means hyper and tension. Hyper is excessive pressure and tension is tension. A person can be said to suffer from hypertension if the systolic blood pressure is > 140 mmHg and diastolic > 90 mmHg. High blood pressure and not treated or prevented early, very risky causes degenerative diseases such as retinopathy, heart wall thickening, kidney damage, coronary heart disease, blood vessel rupture, stroke, and can even

cause sudden death (Ainurafiq et al, 2019).

Riskesdas (2018) explains that hypertension is a non-communicable disease that has the highest prevalence diagnosed in health facilities with a total of 185,857 cases. The prevalence of hypertension in Indonesia at the age of ≥ 18 years is 34.1% with the highest hypertension sufferer in South Kalimantan at 44.1% while South Sulawesi ranks 13th highest with 31.9%. Based on gender, the prevalence of hypertension in women tends to be higher than men and the prevalence of hypertension in urban areas tends to be higher than in rural areas. The prevalence of hypertension in Indonesia in the age group 15-24 years is 13.2% in the age group 25-34 years was 20.1%, age group 35-44 years 31.6% age 45-54 years 45.3%, age 55-64 years 55.2% for ages 65-74 years 63.2% while more than 75 years is 69.5%, with this high prevalence of unnoticed hypertension the number could be even higher (4). Based on data from the Makassar City Health Office's P2PL Development Sector (2015) explain there were 11,596 cases of hypertension with details of gender - 4,277 cases of men and 7,319 cases of women. (Ainurafiq et al, 2019).

According to data from the World Health Organization or WHO, it is reported that around 51% of deaths are due to stroke and 45% from heart disease coroner caused by hypertension. The percentage of the population aged 18 years and over in 2014 who experienced increased blood pressure (systolic blood pressure = 140 mmHg or diastolic blood pressure = 90 mmHg) was 24.0% for men and 20.5% for women. The prevalence of hypertension will continue to increase sharply, it is predicted that by 2025 as many as 29% of adults worldwide will be affected by hypertension (WHO, 2020).

Treatment of high blood pressure can be done pharmacologically or by using drugs and non-pharmacological therapy or therapy without drugs. Many types of hypertension drugs can be classified into various classes based on how they work. For each class there are also several similar drugs with the same or nearly the same properties as one another. There are five main groups of antihypertensive drugs namely thiazide diuretics, beta-blockers, ACE inhibitors, alpha-blockers, and calcium channel blockers. This drug has a direct vasodilation effect on arterioles causing a sustained hypotensive effect. Nearly 25% of men suffer from impotence as a side effect and other side effects are a lot of urinating, the body lacks potassium, sexual disorders in men, sleep disturbances, impaired kidney function, dizziness, coughing and others (Vino et al, 2019).

Diet for people with hypertension, namely by consuming fruits that can affect blood pressure, such as consume star fruit (Averrhoa carambola). Sweet star fruit is a fruit that is widely known by the people of Indonesia and is easy to find at a relatively affordable price. Sweet star fruit is useful in helping to lower blood pressure because of the fiber, potassium, phosphorus and vitamin C content. Water content, magnesium and potassium as well as high fiber in sweet star fruit can neutralize and lower blood pressure. Potassium levels in 1 medium-sized star fruit is approximately 127 grams, has a potassium content of up to 207 mg and 3 grams of fiber which is able to absorb fat so it is very effective for lowering blood pressure in people with hypertension (Ari et al, 2020)

Star fruit contains substances that are beneficial to health in the form of energy, carbohydrates, dietary fiber, fat, and protein. Star fruit is crunchy when eaten, tastes sweet, slightly sour and contains lots of vitamin C. Star fruit has analgesic, antihypertensive and diuretic properties. Diuretics have an antihypertensive effect by increasing the release of water and sodium salts. Star fruit is rich in fiber which will bind fat and have an impact on not gaining weight, one of the risk factors for hypertension. (Vino et al, 2019).

METHOD

This research uses the method *Pre-Experiment One Group Pretest- Posttest Design.* The research approach used in study This is a pre-experiment with certain criteria, namely clients with type I hypertension (mild), do not have comorbidities, elderly with a vulnerable age of 55 years and over who are at the post at the elderly post in Jatirejo Village, Ngargoyoso District, Karanganyar Regency, clients who are willing to be respondents, hypertensive patients who do not take medication.

The population of this study were all the elderly at the Jatirejo Village elderly post, totaling 70 elderly, the sample in this study was taken by use technique *purposive sampling* a number of 30 elderly people with high blood pressure and who met the inclusion criteria.

The therapy for giving sweet star fruit juice is given 2x a day in the morning at 08.00 and in the afternoon at 15.00. Given as much200 ml for 7 days and sweet star fruit juice must be added with 2 tablespoons of honey, this observation was made before and after the intervention of giving sweet star fruit juice. The client's blood pressure was measured using a sphygmomanometer with the intention of knowing the respondent's total blood pressure before the intervention of giving sweet star fruit juice. After the intervention of giving sweet star fruit juice, observations were made again at the time after giving sweet star fruit juice by the therapist as data.

This research analysis the data used is the paired t-test where this test is to determine whether there is a change between the two sample which are paired.

RESULT AND DISCUSSION

1. **Blood Pressure Before (Pre) Administration of Sweet star fruit Juice in the Elderly with Hypertension**.

Table 4.5 Results of Pre-Given Star fruit Juice

	N	Min	Max	Mean
Pre Systolic Blood Pressure Intervention	30	140	160	150,67
Pre Diastolic Blood Pressure Intervention	30	90	110	97,67
Valid N (listwise)	30			

Table 2.3 shows the maximum value of blood pressure before the intervention of giving sweet star fruit juice to 30 respondents, namely 160/110 mmHg and the minimum value of 140/90 mmHg with an average systolic value of 150.67 mmHg and an average value in diastole of 97.67 mm Hg.

2. **Blood pressure after (post) administration of sweet star fruit juice in the elderly with hypertension**.

Table 4.6 Post Blood Pressure Results Given Sweet Star fruit Juice

	n	Min	Max	Mean
Post systole blood pressure Intervention	30	130	150	137,33
Post Diastolic Blood Pressure Intervention	30	80	100	92,67
Valid N (listwise)	30			

Table 2.4 shows the maximum value of blood pressure after the intervention of giving sweet star fruit juice to 30 respondents, namely 150/100 mmHg and the minimum value of 130/80 mmHg with an average systolic value of 137.33 mmHg and an average value in diastole of 92.67 mm Hg.

3. Effectiveness of sweet star fruit juice to reduce blood pressure.

Table 4.7 Results Effectiveness of blood pressure after sweet star fruit juice

Variable	N	Mean	t-test	P
Systolic Blood Pressure pre intervention- Diastolic Blood Pressure Pre Intervention	30	53.000	44.574	
Systolic Blood Pressure pre intervention- Blood Pressure diastole Pre Intervention	30	42.122	35.902	

Based on the statistical test with the paired sample t-test, it was found that systolic and diastolic blood pressure had a value of p-0.000, which means p <0.005, which is based on the results of the paired t-test.To If accepted, then there is a difference in blood pressure before and after being given sweet star fruit juice therapy in the elderly with hypertension at the elderly post in Jatirejo Village, Kec.Ngargoyoso, Kab. Karanganyar.

Discussion

1. Systolic and Diastolic Blood Pressure Before (Pre) Administration of Sweet star fruit Juice in Elderly with Hypertension

The results of calculating systolic and diastolic blood pressure before the intervention of giving star fruit juice to 30 respondents with a maximum value of 160/110 mmHg and a minimum value of 140/90 mmHg with an average value of 150.67 mmHg for systolic and 97.67 mmHg for diastolic.

2. Systolic and diastolic blood pressure after (post) intervention given sweet star fruit juice

The results of calculating systolic and diastolic blood pressure after the intervention of giving star fruit juice to 30 respondents with a maximum value of 150/100 mmHg and a minimum value of 130/80 mmHg with an average value of 137.33 mmHg for systolic and 92.67 mmHg for diastolic.

3. Effectiveness of sweet star fruit juice to reduce blood pressure in elderly with hypertension

The results showed that there were differences in blood pressure in the elderly with hypertension before and after administration of sweet star fruit juice for 7 days or 1 week. The results of the analysis using the paired sample t-test obtained p value = 0.000 <0.05, thus Ho accepted. Giving star fruit juice is in line with research from Vino Rika (2018) which states that there is an effect of sweet star fruit juice on reducing blood pressure in people with hypertension, blood pressure before being given star fruit juice 161.20/99.00 mmHg and blood pressure after being given star fruit juice, which is 139.20/81.20 mmHg. .

According to Nonce (2020) consuming foods high in potassium and fiber can lower blood pressure, sweet star fruit has a diuretic effect which can improve urine or BAK so that it can reduce the workload of the heart, potassium in 1 star fruit itself is 207 mg with fiber as large as5 gr this shows that in 1 star fruit contains potassium and fiber which is quite significant in helping to lower blood pressure, plus with sodium content (sodium) which is relatively low so it can lower blood pressure

4. The effect of giving sweet star fruit juice to reducing blood pressure

The results showed that there was an effect of giving sweet star fruit juice on reducing blood pressure in the elderly with hypertension. These results are in line with research from Vino Rika (2018) that there is an effect of reducing blood pressure in people with hypertension in the working area of the Andalas Public Health Center in Padang City in 2018. Furthermore, according to Nonce (2020) said consume star fruit juice can lower blood pressure because sweet

star fruit contains flavonoids which have a diuretic effect which can facilitate urination or urination which can reduce the workload of the heart.

Consume sweet star fruit juice200 ml as much as 1x a day given for 1 week or 7 days. It is said that star fruit also have fat content so fed up which lowers high blood pressure and prevents cancer.

A star fruit is pregnant33 mg vitamin C, 0.03mh Vitamin B1, 22mg phosphorus, 8 mg Calcium, 0.8 mg Iron and 0.5 mg protein (Sri, 2020) Based on statistical tests with the paired sample t-test obtained systolic and diastolic blood pressure values p- 0.000 which means p <0.005, which is based on the results of the paired t-test If accepted, then there is a difference in blood pressure before and after being given sweet star fruit juice therapy in the elderly with hypertension at the elderly post in Jatirejo Village, Kec.Ngargoyoso, Kab. Karanganyar.

CONCLUSION

Based on the results of research and discussion on the effectiveness of giving sweet star fruit juice to blood pressure in hypertensive patients at the elderly post in Jatirejo Village, Kec. Ngargoyoso, Kab. Karanganyar can be concluded that:

1. The maximum value of blood pressure before the intervention of giving sweet starfruit juice was 160/110 mmHg while the minimum value was 140/90 mmHg with an average value of 150.67 mmHg for systole and an average value for diastolic was 97.67 mmHg.
2. The maximum value of blood pressure after being given the intervention of giving sweet star fruit juice is 150/100 mmHg while the minimum value is 130/80 mmHg for diastole. Average value

   137.33 mmHg for systole and the average value for diastolic 92.67 mmHg.
3. There was a difference in blood pressure after administration of sweet starfruit juice with a p-000 value meaning p <0.05 in systolic and diastolic blood pressure.
4. Sweet starfruit juice is given 200 ml or the equivalent of 1 glass with 2 tablespoons of honey added, taken 2x a day in the morning at 08.00 and in the afternoon at 15.00, sweet starfruit juice is drunk after eating and given for 7 days or one week.

SUGGESTION

Based on the conclusions obtained from the results of the study, the researchers suggest:

1. Improving health promotion to all people related to complementary therapy or non-pharmacological therapy by giving juicestar fruit sweet on lowering blood pressure in the elderly.
2. It is hoped that future researchers will be able to update nursing theories regarding non-pharmacological therapies that can reduce high blood pressure.
3. It is hoped that future research can be used as initial data and guidelines for non-pharmacological therapy research and can collaborate with other health workers such as pharmacists who can develop knowledgespecifically in the field of health or non-pharmacological therapy.

REFERENCES

F. (2015). JUS BELIMBING MANIS (Averrhoa carambola L.) SEBAGAI HEPATOPROTEKTOR PADATIKUS PUTIH (Rattus novergicus strain wistar) YANGDIINDUKSI

A. M. (2020). Efektifitas Belimbing Manis (Averrhoa Carambola Linn) sebagai Anti Hipertensi pada Pasien Hipertensi di Puskesmas Metro Pusat,Kota Metro. *Titian Ilmu: Jurnal Ilmiah Multi Sciences*, *12*(2), 77-84.

Ainurrafiq, A., Risnah, R., & Azhar, M. U. (2019). Terapi Non Farmakologi dalam Pengendalian Tekanan Darah Pada Pasien Hipertensi: Systematic Review. Media

Publikasi Promosi Kesehatan Indonesia (MPPKI), 2(3), 192-199.

ANTITUBERKULOSIS RIFAMPISIN

Arum dwi,devy, dkk.2020. Metodologipenelitian kesehatan.Pena Persada :Banyumas, jawa tengah

Arza, P. A., & Irawan, A. (2018). Pengaruh pemberian jus averrhoa carambola terhadap penurunan tekanan darah pada lansia penderita hipertensi. *Jurnal Kesehatan*, *9*(1),51-56.

BELIMBING MANIS (AverrhoaCarambola) TERHADAP PENURUNAN TEKANAN DARAHPADA PENDERITAHIPERTENSI. *Jurnal*

Cholifah, N., Suyatno, S., & Hartinah, D. (2018). Pengaruh Juice Belimbing Manis (Averrhoa Carambola Linn) Terhadap Tekanan Darah Pada LansiaDengan Hipertensi Di Desa Lemah Putih Kec. Brati Kab. Grobogan. *Jurnal Ilmu Keperawatandan Kebidanan*, *9*(2), 118-125.

dalam penelitian kedokteran.Nasya Expanding Management :Pekalongan jawa tengah.

DAN ISONIAZID. *Saintika Medika*, *11*(2),127-134.

Garwahusada, E., & Wirjatmadi, B. (2020). Hubungan jenis kelamin, perilaku merokok, aktivitas fisik denganhipertensi pada pegawai kantor. *Media Gizi Indonesia*, *15*(1), 60-65.

GIZIDO, *12*(2), 113-125.

Hastjarjo, T. D. (2019). Rancangan eksperimen-kuasi. *Buletin Psikologi*, *27*(2),187-203.

Iralawati, A. D., Hermayanti, D., & Safithri,

Khusuma, A., Suhartiningsih, S., & Anasis,

Langi, G. K., Rumagit, F., Montol, A. B., & Arunde, F. (2020). PENGARUH JUS

MANIS (Averrhoa carambola L.). *FITOFARMAKA: Jurnal IlmiahFarmasi*, *8*(1), 1-12.

Medika : Jakarta

Nur,yanita .2017.BERDAMAI DENGANHIPERTENSI HAL12-20 .Bumi

Nuraeni, E. (2019). Hubungan Usia Dan Jenis Kelamin Bere siko Dengan Kejadian Hipertensi Di Klinik X KotaTangerang. *Jurnal JKFT*, *4*(1), 1-6.

Oktaviani, E. (2018). PENENTUAN KADAR FLAVANOID DAN AKTIVITAS ANTIOKSIDAN FORMULA SERBUK MINUMAN INSTAN EKSTRAK BELIMBING

POPULASI,SAMPLE,VARIABEL

Roflin,E dkk. 2021.

Yulanda, G., & Lisiswanti, R. (2017). Penatalaksanaan Hipertensi Primer. *Jurnal Majority*, *6*(1), 28-33.