



ROSELLA FLOWER TEA ON BLOOD PRESSURE REDUCTION IN HYPERTENSION PATIENTS

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ABSTRACT

Hypertension is a disease that is a problem throughout the world where its prevalence, morbidity and mortality are increasing every year. Hypertension is often called the silent killer because it does not provide specific symptoms, but can increase the incidence of stroke, heart attack, chronic kidney disease and even blindness if it is not properly controlled and controlled. Management of hypertension is generally done with pharmacological therapy which aims to reduce blood pressure but often has side effects of drugs that aggravate kidney function. Pharmacological therapy has not shown improvement in reducing blood pressure symptoms. Non-pharmacological treatment is expected to be able to complete pharmacological treatment in reducing blood pressure in patients using rosella flower tea which works to open blood vessels wider, reduce blood viscosity and increase urine production so as to reduce blood volume. The purpose of this study is to study the effect of rosella tea on the reduction in blood pressure in patients with hypertension. This study uses a Quasy Experiment design with the Two Group Pretest and Posttest design approach. This research was conducted on patients with hypertension at the Padang City Health Center with an intervention group of 16 respondents and a control of 16 respondents. Data analysis in this study used univariate and bivariate using independent t-test statistics. The results of the study showed the average blood pressure in the systolic pretest intervention group 147.81 for 94.69 distol and posttest systole 129.06 posttest distol 78.75 while the control group for systole pretest 154.6 for distol 96.25 and posttest without posttest treatment systole 129.06 posttest distol 78.75. Obtained a p-value 0,000 statistical test for systole and a p-value 0,000 distol. There is an effect of rosella flower tea on reducing blood pressure in patients with hypertension at the Padang City Health Center.

Keyword : Hypertension, Rosella Flower Tea and Decreased Blood Pressure

INTRODUCTION

Hypertension has a major impact on the burden of cardiovascular disease worldwide¹. Morbidity and mortality of hypertension is very high because it can damage a number of important organs in the body. People with hypertension have twice the risk of suffering from CAD, four times more suffering from congestive heart failure and seven times higher stroke than people who have normal blood pressure². Hypertension is called the silent killer because it is often without complaints, so patients do not know that they

have hypertension and it is only known after complications occur³.

Data from the World Health Organization (WHO) in 2015 showed that around 1.13 billion people in the world have hypertension, meaning that 1 in 3 people in the world is diagnosed with hypertension. The number of people with hypertension continues to increase every year, it is estimated that in 2025 there will be 1.5 billion people who are affected by hypertension, and it is estimated that every year 9.4 million people die from hypertension and its complications⁴.



Riskesdas (2018), the death rate due to hypertension was ranked 5th out of ten causes of death in Indonesia with an average hypertension prevalence of 34.1%⁵. West Sumatra ranks 5th out of the number of hypertension in Indonesia with a prevalence of 484,345 cases. The highest case of hypertension in the city of Padang is in the working area of the Andalas Community Health Center with 2016 visits totaling 4678 and increasing to 9,587 in 2018, the visit ranks first among several other disease problems⁵.

Treatment of hypertension is generally done with pharmacological therapy which aims to reduce blood pressure but often has side effects of drugs that aggravate kidney function. Existing drugs for hypertension have not shown their health status. Non-pharmacological treatment methods are expected to be able to complement pharmacological treatment in lowering blood pressure by using herbal medicine for rosella flower tea.

Rosella flower (*Hibiscus Sabdariffa* L.) has the same ability as a blood pressure-reducing drug, which can open blood vessels wider, reduce blood viscosity and increase urine production so as to reduce blood volume. Even rosella can control mild or moderate types of hypertension. Rosella tea can work faster and certainly safer and better than medicine^{6,7}. The chemical content of rosella are organic acids, flavonoids (flavonols and anthocyanins), calcium, niacin, riboflavin, iron, and vitamins A and C⁸. The active compound in rosella helps smooth digestion by reducing the degree of viscosity (thickness) of blood. Furthermore, the work of the heart pumps blood more lightly and automatically lowers blood pressure^{9,10,11,12}. How to make rosella tea only need a glass of hot water,

sugar and of course rosella flowers that have dried, no more than ten minutes of rosella tea is ready to be enjoyed and this tea is taken 2 times a day every day until blood pressure returns to normal. Provision of standardized rosella calyx extracts containing 9.6 mg of anthocyanin (the natural red color of rosella flowers) every day for 12 days, can reduce blood pressure that is not significantly different from captopril 50 mg / day. Standardized rosella is made from 3 dried roselle flowers and 200 liters of water¹³. Research conducted by SM Seck, D Doupa, DG Dia, EHA Diop (2018) can reduce blood pressure by giving rosella tea flowers^{14,15,16,17} and other studies state that using rosella tea can reduce blood pressure^{18,19,20}.

The purpose of this study was to study the effect of rosella flower tea on reducing blood pressure in people with hypertension.

MATERIAL AND METHODS

This research is a quantitative study using the quasy experiment design with the two group pretest and posttest design approach. This study was conducted at the Padang City Health Center. The population in this study was 7,670 people with hypertension in the working area of the puskesmas with a sample of 16 interventions and 16 controls. This study was conducted on March 5 to May 5, 2020. with the inclusion criteria of patients with mild and moderate hypertension and aged 30-60 years while the exclusion criteria of respondents with complications. This study uses rosella blossom tea which is used is dried rosella blossom petals which is consumed 2 times a day for 2 weeks by measuring the blood pressure of respondents before and after being given rosella flower tea. Data is distributed in narrative and table form using independent t-test.



RESULT

Table 1. The average delivery of rosella flower tea to reduce blood pressure in patients with hypertension in the Padang City Health Center in the Intervention Group

Variable	Mean	N
The mean decrease in blood pressure of hypertension pretest systole patients in the intervention group	147,81	16
The Mean decrease in blood pressure of patients with pretest hypertension dystol in the intervention group	94,69	
The mean decrease in blood pressure of patients with posttest systolic hypertension in the intervention group	129,06	
The mean decrease in blood pressure of posttest dystol hypertension in the intervention group	78,75	

Table 1 above proves that the average value of hypertension reduction in the systolic pretest intervention group is 147.81 for 94.69 dystolytes while the average posttest systole is 129.06 and posttest dystol 78.75.

Table 2. Average decrease in blood pressure in patients with hypertension in Padang City Health Center in the Control Group

Variable	Mean	N
The mean decrease in blood pressure of hypertension pretest systole patients in the control group	154,69	16
The Mean decrease in blood pressure of patients with pretest hypertension dystol in the control group	96,25	
The mean decrease in blood pressure of patients with posttest systolic hypertension in the control group	147,19	
The mean decrease in blood pressure of patients with posttest hypertension was doped in the control group	94,06	

Table 2 above proves that the average value of hypertension reduction in the systolic pretest control group is 154.69 for 96.25 .06. distol while the mean post-systole 147.19 and posttest distol 94

Table 3. Effect of rosella flower tea on reducing blood pressure in patients with hypertension in Padang City Health Center in the control and intervention groups

Variable	Mean	SD	P-Value	N
The mean decrease in Systolic blood pressure in patients with hypertension by the administration of rosella tea to the control and intervention groups	18.125	2.894	0,000	32



The mean decrease in blood pressure dystol in patients with hypertension by the administration of rosella tea to the control and intervention groups	15.313	1.752	0,000	32
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Table 3 above shows that the results of statistical tests with a p-value of 0,000 ($p < 0.05$) means that there is an influence of the influence of the influence of rosella flower tea on reducing blood pressure in hypertensive patients at the Padang City Health Center

DISCUSSION

Based on the results of the study showed that the statistical test results obtained p-value of 0,000 ($p < 0.05$) means that there is an influence of the influence of the influence of rosella flower tea on reducing blood pressure in patients with hypertension

This study is in line with Widhi Sumirat and Kristyan Wijayanto (2012) with the results of the analysis of the influence of the use of rosella flower tea on reducing blood pressure between hypertensive patients given rosella flower tea with hypertension sufferers who were not given rosella flower tea. blood pressure in patients with hypertension. By using the T-test of two paired samples using the two-way test, systole was obtained with a significant level of 0.05/2 ($P < 0.025$), $P = 0.000$, which means that H_0 was rejected and H_1 was accepted. Diastole also with a two-way test, with a significant level of 0.05 / 2 ($P < 0.025$), obtained $P = 0.000$, which means H_0 is rejected H_1 is accepted²¹.

In this study the experimental group was given 3 dried rosella flowers which were given once a day every morning and given for 12 days. Roselle has a hypotensive and diuretic effect. Rosella is used as a folk medicine, rosella has a mild laxative effect and has the ability to increase urinary frequency because it has two types of diuretics namely ascorbic acid and glycosid acid. Because rosella contains citric acid, so it

is used as an herbal that has a cooling effect, the ability is caused because it can increase blood flow in the skin layer and dilate pores to cool the skin. The leaves and flowers are used as a tea for boosting digestion and kidney function. Flowers and seeds are used for diuretics, laxatives and tonics. Thus rosella has the qualification as an herbal plant because it has been used as a drug in reducing high blood pressure²².

Besides the chemical content of rosella, namely organic acids, flavonoids (flavonols and anthocyanins), calcium, niacin, riboflavin, iron, and vitamins A and C. Active compounds in rosella help facilitate digestion by reducing the degree of viscosity (thickness) of blood. Furthermore, the work of the heart pumps blood more lightly and automatically lowers blood pressure²³.

CONCLUSION

There is an effect of rosella flower tea on reducing blood pressure in patients with hypertension at the Padang City Health Center

REFERENCES

1. Bromfield and Muntner, Bromfield S, Muntner P. High Blood Pressure: The Leading Global Burden of Disease Risk Factor and The Need for Worldwide Prevention Programs. *Curr Hypertens Rep*. Available from: file:/// C: / Users / Dell / Downloads / KTI / High Blood Pressure The Leading Global Burden of Disease Risk Factor and the Need for Worldwide Prevention Programs.htm 2013; 15 (3): 134–6
2. Mohan, V., Seedat, YK, Pradeepa, R, The Rising Burden of Diabetes and



- Hypertension in Southeast Asian and African Regions: Need for Effective Strategies for Prevention and Control in Primary Health Care Settings, *International Journal of Hypertension*;2013: 123-127
3. Paretyaningrum, Yunita Indah. Hypertension is not to be feared. Jakarta: F Media ; 2014:45-70
 4. WHO in Widiyani. Hypertension Patients Continue to Increase.2015 <http://health.kompas.com/rend/04/05/1404008/penderita.hipertension>. Accessed 5 June 2019
 5. Basic Health Research (Riskesdas). Data Collection Officer Interviewer Guidelines. Jakarta: National Research and Development Agency. Accessed 5 June 2019
 6. Wahabi HA, Alansary LA, Al-Sabban AH, Glasziuo P. The effectiveness of Hibiscus sabdariffa in the treatment of hypertension: A systematic review. *Phytomedicine* 2010;1(7): 83–86.
 7. Ngamjarus C, Pattanittum P, Somboonporn C. Roselle for hypertension in adults. *Cochrane Database Syst. Rev*; 2010 : 1–17
 8. Yang MY, Peng CH, Chan KC, Yang YS, Huang CN, Wang CJ. The hypolipidemic effect of Hibiscus sabdariffa polyphenols via inhibiting lipogenesis and promoting hepatic lipid clearance. *J. Agric. Food Chem* 2010;5(8): 850–859.
 9. Ali BH, Wabel NA, Blunden G. Phytochemicals, pharmacological and toxicological aspects of Hibiscus sabdariffa L .: A review. *Phytother. Res.* 2015 : 1(9): 369-375.
 10. Gruenwald J, Brendler T, Jaenicke C. Hibiscus. In: Gruenwald J, Brendler T, Jaenicke C, editors. *PDR for Herbal Medicines*. 4th ed. Montvale, N.J .: Thomson Health Care Inc .; . pp.2017;8(1): 442–443.
 11. Segura-Carretero A, Puertas-Mejia MA, Cortacero-Ramirez S, Beltran R, Alonso-Villaverde C, Joven J, Dinelli G, Fernandez-Gutierrez A. Selective extraction, separation and identification of anthocyanins from Hibiscus sabdariffa L. using solid phase extraction capillary electrophoresis mass spectrometry (time-of-flight ion trap) *Electrophoresis* 2018;2(9): 2852–2861.
 12. Maygo-Ayerdi SG, Arranz S, Serrano J, Goni I. Dietary fiber content and associated antioxidant compounds in roselle flower (Hibiscus sabdariffa L.) beverage. *J. Agric. Food Chem* 2017 ;5(5):7886–7890.
 13. McKay DL, Chen CYO, Saltzman E, Blumberg JB. Hibiscus Sabdariffa L. Tea (Tisane) lowers blood pressure in prehypertensive and mildly hypertensive adults. *J. Nutr .*; 2010; 1(4): 298-303.
 14. Fakeye TO, PSM Seck, D Doupa, DG Dia, EHA Diop, Clinical efficacy of African traditional medicines in hypertension: A randomized controlled trial with Combretum micranthum and Hibiscus sabdariffa <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3593772/> / 2013; 2(4): 89-120
 15. al A, Bawankule DU, Yadav NP, Khanuja SPS. Toxic effects of oral administration of extracts of dried calyx of Hibiscus sabdariffa Linn. (Malvaceae) *Phytother. Res* 2009;2(3): 412-416.



16. Ndu OO, Nworu CS, Ehiemere CO, Ndukwe NC, Ochiogu IS. Herb – drug interaction between the extracts of Hibiscus sabdariffa L. and hydrochlorothiazide in experimental animals. *J. Med. Food.* 2011; 1(4): 640–644.
17. Kolawole JA, Maduenyi A. Effect of zobo drink (Hibiscus sabdariffa water extract) on the pharmacokinetics of acetaminophen in human volunteers. *Eur J. Drug Metab. Pharmacokinet.* 2016 ; 2(9): 25-29.
18. Sumirat, Widhi and Wijayanto, Kristyan. Effect of Rosella Flower Tea Utilization on Reducing Blood Pressure in Patients with Hypertension, Research Report, Akper Pamenang Pare, Kediri, p. 2012:6(2): 45-78
19. Andika, Kadek Agus, et al. Effect of Roselle Flower Influence on Changes in Blood Pressure of Hypertension Patients with Captopril Therapy, Research Report, Faculty of Medicine, Sam Ratulangi University, Manado 2014;5(1):130-145
20. Aprililianti, Dewi, et al. Effect of Giving Rosella Flower Petals Extract on Decreasing Blood Pressure Levels in Patients with Hypertension, Research Report, Eka Harapan School of Health Sciences, Palangka Raya, Central Kalimantan, p 2018; 6(2):274-279
21. Udjianti, W.J. Cardiovascular Nursing. Jakarta: Salemba Medika;2011: 69-88
22. Sumirat, Widhi and Wijayanto, Kristyan. Effect of Rosella Flower Tea Utilization on Reducing Blood Pressure in Patients with Hypertension, Research Report, Akper Pamenang Pare, Kediri, p. 2012 ; 6(1):54-59
23. Suddenly, et al. The Effect of Rosella Flower Tea on Reducing High Blood Pressure in the Elderly in Windu Village, Karangbinangun District, Lamonga District, Research Report, p.2011 ;2(4):38-45
24. Agromedia Editor. Healthy Solutions to Overcome Hypertension. Jakarta: Agromedia Reader; 2009: 68-92