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 postest 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 roselia 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 roselia 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 roselia are organic acids, flavonoids (flavonols and anthocyanins), calcium, niacin, riboflavin, iron, and vitamins A and C8. The active compound in roselia 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 pressure9,10,11,12. How to make roselia tea only need a glass of hot water, sugar and of course roselia flowers that have dried, no more than ten minutes of roselia 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 roselia calyx extracts containing 9.6 mg of anthocyanin (the natural red color of roselia flowers) every day for 12 days, can reduce blood pressure that is not significantly different from captopril 50 mg / day. Standardized roselia is made from 3 dried roselia flowers and 200 liters of water13. Research conducted by SM Seck, D Doupa, DG Dia, EHA Diop (2018) can reduce blood pressure by giving roselia tea flowers 14,15,16,17 and other studies state that using roselia tea can reduce blood pressure 18,19,20.

The purpose of this study was to study the effect of roselia 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 puskemas 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 roselia blossom tea which is used is dried roselia blossom petals which is consumed 2 times a day for 2 weeks by measuring the blood pressure of respondents before and after being given roselia 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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>The mean decrease in blood pressure of hypertension pretest systole patients in the intervention group</td>
<td>147.81</td>
<td></td>
</tr>
<tr>
<td>The Mean decrease in blood pressure of patients with pretest hypertension dystol in the intervention group</td>
<td>94.69</td>
<td>16</td>
</tr>
<tr>
<td>The mean decrease in blood pressure of patients with posttest systolic hypertension in the intervention group</td>
<td>129.06</td>
<td></td>
</tr>
<tr>
<td>The mean decrease in blood pressure of posttest dystol hypertension in the intervention group</td>
<td>78.75</td>
<td></td>
</tr>
</tbody>
</table>

Table 1 above proves that the average value of hypertension reduction in the systolic pretest intervention group is 147.81 for 94.69 dystolies 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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>The mean decrease in blood pressure of hypertension pretest systole patients in the control group</td>
<td>154.69</td>
<td></td>
</tr>
<tr>
<td>The Mean decrease in blood pressure of patients with pretest hypertension dystol in the control group</td>
<td>96.25</td>
<td>16</td>
</tr>
<tr>
<td>The mean decrease in blood pressure of patients with posttest systolic hypertension in the control group</td>
<td>147.19</td>
<td></td>
</tr>
<tr>
<td>The mean decrease in blood pressure of patients with posttest hypertension was doped in the control group</td>
<td>94.06</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 above proves that the average value of hypertension reduction in the systolic pretest control group is 154.69 for 96.25.06.

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

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>P-Value</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>The mean decrease in Systolic blood pressure in patients with hypertension by the administration of rosella tea to the control and intervention groups</td>
<td>18.125</td>
<td>2.894</td>
<td>0.000</td>
<td>32</td>
</tr>
</tbody>
</table>

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The mean decrease in blood pressure dytost in patients with hypertension by the administration of roSELLA tea to the control and intervention groups

<table>
<thead>
<tr>
<th></th>
<th>15.313</th>
<th>1.752</th>
<th>0.000</th>
<th>32</th>
</tr>
</thead>
</table>

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 H0 was rejected and H1 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 H0 is rejected H1 is accepted.

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 pressure.

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 pressure.

**CONCLUSION**

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

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