EFFECTS OF GIVING CELERY JUICE (APPIUM GRAVEOLANS LINN) IN BLOOD PRESSURE CLIENTS (30-50 YEARS OLD) IN KARANGJATI NGAWI 2016

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ABSTRACT
Blood pressure is a pressure in blood vessel when the heart pump the blood through the body. Based on the data from Karangjati Primary Health Care on September –November 2015 obtained 25 clients with hypertension in range 30-50 years old. The results showed that the high incidence of hypertension. The purpose of this study was to know the effect of celery juice (Apium graveolans Linn) in blood pressure of client 30-50 years old in Karangjati Ngawi 2016. The research design was pre-experimental one group pre test post test design. The population was 25 clients and the sampling was total population. The result of this study was tested with T Paired Test. The results showed that the average of systole and diastole before given celery juice were 150,00 mmHg and 95,40 mmHg, respectively. In addition, the average of systole and diastole after given celery juice were 141,40 mmHg and 88,80 mmHg, respectively. Based on T paired test (α 0,05), p value of systole and diastole were 0,000. The results showed that there was an effect of celery juice (Apium graveolans Linn) in blood pressure of client 30-50 years old in Karangjati Ngawi 2016. Based on these findings, celery juice could be recommended as complementary therapy for hypertension among adults. Further study is needed to compare the effects between celery juice with pharmacology therapy of hypertension.

Keywords: celery juice (Apium graveolans Linn), systole, diastole

Introduction
Blood pressure is a pressure in blood vessel when the heart pump the blood through the body. Hypertension can be defined as persistens blood pressure where the systolic pressure is above 140 mmHg and the diastolic pressure above 90 mmHg (Smeltzer, 2008).

In indonesia, the hypertension rate reaches 25.8 % in 2013 with an age range above 25 years old. The number of male patients reached 42.7 %, while 39.2 % are women. in 2010, data on the number of hypertension sufferers from East Java Health Office, there are 275,000 people with hypertension. Based on the data from Karangjati Primary Health Care on September –November 2015 obtained 25 clients with hypertension in range 30-50 years old.

Hypertension caused by several factors, that influence blood pressure, there are cardiac output and peripheral resistance. The balance of cardiac output and peripheral resistance very influential to the blood pressure. In addition, hypertension risk factors are age, gender, family history, genetic, smoking, intake of salt, intake of saturated fat, obesity, stress, less activity, estrogen therapy (Gray dan Rusdi, 2007)

Impact of hypertension are occurrence of heart attack, heart failure
and stroke. There are two kinds of hypertension therapy, pharmacological therapy that is using drugs and nonpharmacological therapy. Nonpharmacological therapy includes exercises, low fat and salt diet, weight loss, and complementary therapies (Marlia, 2009).

Nonpharmacological therapy is highly favored by community because it is very easy to practice, cheap, and no harmful side effect. Complementary therapy used in this study is celery juice (Sustrani, Alam, Hadibroto, 2005).

Based on these, researcher are interest to study about effect of celery juice (Apium graveolans Linn) in blood pressure of client 30-50 years old in Karangjati Ngawi 2016.

- **Method**

  The research design was pre experimental one group pre test post test design. The population was 25 clients and the sampling was total population. The research sample was given celery juice once every 2 days as much as 200 cc each time a drink.

  - **Instrument**

    The instrument used in this study is observation sheet

  - **Data Collection**

    Data collection was done by measuring blood pressure before and after given intervention on each sample, using sphygmanometer and stetoscope.

  - **Data Analysis**

    Before the bivariate statistical test, the data normality test is done first. If the data is normally distributed, the type of statistical test used is paired T test.

- **Results**

  Descriptive data were analyzed from the 25 samples. Result of descriptive analysis are mean, median, standard deviation and standard error.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure (systole)</td>
<td>150.00 mmHg</td>
<td>150.00 mmHg</td>
<td>10.801</td>
<td>2.160</td>
</tr>
<tr>
<td>Blood pressure (diastole)</td>
<td>95.40 mmHg</td>
<td>95.00 mmHg</td>
<td>7.348</td>
<td>1.470</td>
</tr>
</tbody>
</table>

(Source: Primary data of research 2016)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Standard Deviation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood pressure (systole)</td>
<td>141.40 mmHg</td>
<td>145.00 mmHg</td>
<td>9.738</td>
<td>1.948</td>
</tr>
<tr>
<td>Blood</td>
<td>88.80 mmHg</td>
<td>90.00 mmHg</td>
<td>7.257</td>
<td>1.451</td>
</tr>
</tbody>
</table>
EFFECT OF CELERY JUICE IN BLOOD PRESSURE

<table>
<thead>
<tr>
<th>Variabel</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>P-value</th>
<th>α</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systole</td>
<td>before after</td>
<td>8.600</td>
<td>3.391</td>
<td>0.678</td>
<td>0.000</td>
<td>0.05</td>
</tr>
<tr>
<td>Dyastole</td>
<td>before after</td>
<td>6.600</td>
<td>2.380</td>
<td>0.476</td>
<td>0.000</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Based on the result of statistical test using paired T test obtained that p value systole and dyastole is 0.000 with α = 0.05. p value < α so there is the effect of celery juice on blood pressure.

- **Discussion**

  Based on this study showed that there are differences between before and after drinking celery juice in blood pressure. The result of statistical test using paired T test obtained that p value systole and dyastole is 0.000 with α = 0.05. p value < α so there is the effect of celery juice on blood pressure.

  Celery juice can be used as a very safe lowering of blood pressure. Apigenin compounds have the ability among others as anti-inflammatory, anti-vbacterial, gastric problems, and useful as hypotensive (Dalimartha, 2008). Apigenin contained in celery is a vasorelaxator or vasodilator with a contraction inhibition mechanism caused by calcium release (mechanism of action such as calcium antagonist ). Calcium antagonist work by lowering blood pressure by blockading the entry of calcium into the blood.. if calcium enters the muscle cells, it will contrac. By inhibiting the muscle contractions that circle the blood vessels, blood vessels will widen so that the blood flow smoothly and blood pressure will decrease(Rohaendi, 2008).

  The content of celery is flavonoids that act as antioxidants and apiin as diuretics that are beneficial to increase urine output. Antioxidants are able to increase the bioavailability of nitric oxide in the body thus causing a decrease in blood pressure. Endothelial cells syntesize some of the strong bioactive substances that regulate the structure of blood pressure function. These substances include nitric oxide, other reactive species, prostaglandins, endothelin, and angiotensin 2. Nitric oxide helps inhibit atherogenesis and protect blood vessels (Rohaendi, 2008).

- **Conclusion**

  Mean of blood pressure of respondents before drinking celery juice are 150.00 mmHg (systole) and 95.40 mmHg (dyastole)

  Mean of blood pressure of respondents after drinking celery juice are 141.40 mmHg (systole) and 88.80 mmHg (dyastole)

  There was an effect of celery juice (Apium graveolans Linn) in blood pressure of client 30-50 years old in Karangjati Ngawi

**Acknowledgment**

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References
Smeltzer, S and Bare, B. (2008). Medical Surgical Nursing Teaching Book Brunner & Suddart. Jakarta: EGC.