The Effect of Acupuncture Therapy on Blood Pressure Decrease toward Elderly with Hypertension Diagnosist in Panti Werdha Mojopahit, Mojokerto, East Java, Indonesia

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\textbf{A B S T R A C T}

Hypertension is a health problem that commonly found in elderly. Habit factors that often cause hypertension, such as psychological tension or stress. One of the hypertension treatment in non-pharmacological with acupuncture therapy.

This study aimed to investigate the effect of acupuncture therapy on blood pressure in elderly with hypertension diagnosist in Panti Werdha Mojopahit, Mojokerto, East Java, Indonesia.

Research method used Quasi Experimental pretest-posttest control group design. Total sample 16 respondents (8 respondents in treatment groups and 8 respondents in control group) with purposive random sampling technique. Data was collected by observation method, then tabulated using frequency distributions and analyzed with T-test and Paired Independent T-Test significance level \( \alpha=0.05 \). Result shows between the two groups generated hypertension toward elderly, after acupuncture therapy in 4 times (in 4 days) there was a significant decrease of blood pressure. The control group, both systolic and diastolic pressure in the Paired T-Test.

The conclusion, there was no negative side effect of acupuncture therapy on blood pressure toward elderly with hypertension diagnosist. Acupuncture therapy recommend for hypertension in the elderly with problem of a high salt intake, obesity, lack of exercise, stress, smoking, caffeine and genetic factors.

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I. INTRODUCTION

High Blood Pressure (hypertension) is a condition characterized by an increase of blood pressure in the arteries. Hypertension is a disease that generally does not show symptoms, or if any, the symptoms are not concrete, so high pressure in the arteries is often not felt by the patient. Blood pressure usually increases with age and is most prevalent among those over 40 (Iskandar, 2010).

Hypertension in elderly is a health problem that’s often found in elderly people. Based on the United Nations report, the 1989 revision population studies united nations, New York, quoted by Setyabudi (2005) states that the number of elderly population increases rapidly is estimated in 2020 by the number of elderly reached 11.4 % of the total population of Indonesia. Epidemiological studies conducted in Indonesia showed 1.8 - 28.6% of people aged over 20 years of increased risk of hypertension. While the results of studies morbidity and disability SKRT (2001) showed that as many as 43% of diseases suffered by elderly in Indonesia is hypertension and 75% of who suffered by those aged over 65 years old. Based on preliminary study results at Panti Werda Mojokerto, in 2015 the number of elderly in the orphanage Mojokerto as many as 41 elderly and found 19 elderly who suffer from hypertension.
Hypertension in the elderly is caused by many factors closely related to the aging process, hereditary factors, individual characteristics, and lifestyle (Gunawan, 2001). Living habit factors that often cause the occurrence of hypertension one of them is the existence of psychological tension or stress (Bravermen, 2008). For a long time, it has been known that psychological stresses such as stress, fear, and anger can increase blood pressure, when stress tension increases the hyperactivity of the simplified nervous system so that stress hormones such as cortisol and catecholamines in the blood become increasing. This increase in hormones causes vasoconstriction or narrowing of blood vessels so that blood pressure becomes increased (Smeltzer & Bare, 2002).

Treatment of hypertension can be done in two ways, by pharmacology and nonpharmacology treatment. Pharmacological treatments include Beta-blockers that can slow the heart's work and widen the blood vessels (Myra, 2008). In addition to pharmacological treatment, it can also be assisted by nonpharmacology treatments such as acupuncture therapy, treatment by stimulating the surface of the body that can eliminate or reduce symptoms of disease, regulate body function disorders, improve pathological conditions, enhance quality of life, improve aesthetics (beauty), prevent incidence of disease (Sidik, 2010).

Acupuncture is known as one of the Chinese medicine system that uses needle puncture method at certain points to cure illness or reach certain health condition (Alamsyah, 2010). An increase in the acupuncture point is thought to provide stimulation of the autonomic nerves that cause barriers of sympathetic stimulation, resulting in obstruction of the vasoconstrictor nerve resulting in vasodilation. Stabbing at the taichong point (LV 3) causes a decrease in blood pressure along with a decrease in plasma angiotensin II. This suggests that the renin angiotensin system plays an important role in decreasing blood pressure with acupuncture (Prajonggo et al., 2008).

Based on the above description of the research interested in doing research whether there is influence of acupuncture therapy to change blood pressure in the elderly with hypertension in Panti Werdha Mojopahit Mojokerto.

II. METHOD

In this study, researchers used Quasy Experiment research with Pretest - Postest Control Group Design, which is a type of research conducted to reveal causal relationships by involving the control group in addition to the experimental group. In this design, the experimental group was treated while the controls were not. In both groups starting with the pretest, and after the treatment is held back or post test measurement (Nursalam, 2011). In this study, the population is all elderly who suffer from hypertension at Panti Werdha Mojopahit Mojokerto. This research used Non Probability Sampling technique with Purposive Sampling method. The number of samples were 18 hypertensive elderly people in Panti Werdha Mojopahit Mojokerto divided into two groups, 9 people in a treatment group and 9 people into a control group that met the criteria. Criteria for hypertensive patient study with antihypertensive therapy of systolic blood pressure more than 140 and / or diastolic more than 90 mmHg being able to respond in Panti Werdha Mojopahit Mojokerto.
III. RESULTS AND DISCUSSION

a. Research result

1. Blood pressure in elderly before acupuncture therapy

Table 1 Blood Pressure prior to acupuncture therapy in the elderly at Panti Werdha Mojopahit Mojokerto

<table>
<thead>
<tr>
<th>Blood pressure before acupuncture therapy</th>
<th>Result</th>
<th>Control Group</th>
<th>Treatment Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic blood pressure</td>
<td>Mean</td>
<td>170,00</td>
<td>172,50</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>9,258</td>
<td>16,690</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Diastolic blood pressure</td>
<td>Mean</td>
<td>106,25</td>
<td>107,5</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>7,44</td>
<td>7,071</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>

In table 1, the control group before intervention obtained the average value of systolic blood pressure of 170.00 mmHg with Std. Deviation 9.258. In the treatment group the mean value of systolic blood pressure result was 172.50 mmHg with Std. Deviation 16.690 whereas at diastole pressure the mean value of blood pressure result in control group 106.25 mmHg with Std. Deviation 7.44 and in the treatment group the mean value of diastole blood pressure 107.50 mmHg with Std. Deviation 7.071 this can be interpreted that in the control group and the average treatment group systolic blood pressure before the cucumber juice therapy. In accordance with WHO criteria that systolic blood pressure 160-179 mmHg and diastole blood pressure 100-109 mmHg belongs to the category of moderate hypertension.

2. Blood pressure in elderly after acupuncture therapy

Table 2. Blood Pressure after Acupuncture therapy in the elderly at Panti Werdha Mojopahit Mojokerto

<table>
<thead>
<tr>
<th>Blood pressure after acupuncture therapy</th>
<th>Result</th>
<th>Control Group</th>
<th>Treatment Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systolic blood pressure</td>
<td>Mean</td>
<td>163,75</td>
<td>150,00</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>11,877</td>
<td>16,903</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Diastolic blood pressure</td>
<td>Mean</td>
<td>101,25</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>8,345</td>
<td>5,345</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>8</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 2 shows that in the control group after acupuncture therapy, the mean value of systolic blood pressure of 163.75 mmHg with Std Deviation was obtained. Deviation 11.877 in treatment group mean score of systolic blood pressure 150.00 mmHg with Std. Deviation 16.903 whereas at diastolic pressure the mean value of blood pressure result in control group 101.25 mmHg with Std. Deviation 8.345 and in the treatment group the mean value of diastole blood pressure 90.00 mmHg with Std. Deviation 5.345 These could mean that in the treatment group experienced a significant decrease in mean systolic or diastolic blood pressure than in the control group who performed acupuncture therapy for 16 days.

3. Analysis of the effect of acupuncture therapy on blood pressure drop in elderly with hypertension.

Table 3. Table Analysis of Effect of Acupuncture Therapy on Blood Pressure Decrease toward Elderly with Hypertension Diagnosist in Panti Werdha Mojopahit, Mojokerto

<table>
<thead>
<tr>
<th>Remarks</th>
<th>Result</th>
<th>Paired T Test</th>
<th>Independent T Test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Treatment</td>
<td>Control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pre</td>
<td>Post</td>
</tr>
<tr>
<td>Systolic blood pressure</td>
<td>Mean</td>
<td>172.50</td>
<td>150.00</td>
</tr>
<tr>
<td></td>
<td>Measurement</td>
<td>22.5</td>
<td>6.25</td>
</tr>
<tr>
<td></td>
<td>Signification</td>
<td>p = 0,000</td>
<td>t = 6.148</td>
</tr>
<tr>
<td>Diastole blood pressure</td>
<td>Rata-rata</td>
<td>107.50</td>
<td>90.00</td>
</tr>
<tr>
<td></td>
<td>Std. Deviation</td>
<td>7.071</td>
<td>5.345</td>
</tr>
<tr>
<td></td>
<td>Measurement</td>
<td>17.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Signification</td>
<td>p = 0,000</td>
<td>t = 10,693</td>
</tr>
</tbody>
</table>

Practically, can be seen in the table above that before and after acupuncture therapy in the treatment group obtained the average value of the difference sistol blood pressure measurement 22.5 is greater than the control group obtained only value 6.25. The average value of difference in diastole blood pressure measurement results 17.5 is greater than the control group that only obtained the average value of diastole blood pressure measurement results 5. Meaning, there is a change in blood pressure measurement results sistol and diastole pressure measurement results in elderly with hypertension after acupuncture therapy.

The results of this study can be reinforced with the results of other statistical tests that serve to determine the difference of systolic blood pressure measurement and diastole between treatment group and control group that is by using Independent Test Test. After independent t test statistic test on treatment group and control group by comparing the measurement of blood of siastol and measurement of diastole blood obtained result p = 0.000 and on measurement of diastole blood obtained result p = 0.000. After given treatment p <0.05, so it can be concluded that Ho is rejected, which means there is a decrease in blood pressure in elderly with Hypertension after acupuncture therapy done at Panti Werdha Mojopahit Mojokerto.
b. Discussion

1. Blood pressure analysis in elderly before acupuncture therapy

   In table 1. There are several possible factors causing an increase in blood pressure in the elderly at Panti Werdha Mojopahit Mojokerto. Among them are genetic factors, biological changes that occur due to aging process and less healthy lifestyle (Gunawan, 2001).

   From genetic factors, the researchers did not study whether there was a history of hypertension in the sample family. Due to the average of many elderly people who do not know the disease that had suffered previous families, whereas the biological changes that may play a role in the increase in blood pressure in the elderly is a change in cardiac output. Increased peripheral resistance, renal blood flow and decreased glomerular filtration rate, decreased barideceptor sensitivity, increased sympathetic nervous activity (Soparman and Sarwono, 2011).

   The results of other people's research turned out the average value of systolic blood pressure and diastolic before acupuncture therapy is high enough. In accordance with WHO criteria that blood pressure of 169 mmHg included in the category of moderate blood pressure (Sumano, 2009), and on the results of the researchers the average value of blood pressure before acupuncture therapy included in the category of being.

2. Blood pressure analysis in elderly after acupuncture therapy

   Based on table 2 above, the results of blood pressure measurements in the treatment group that has done acupuncture therapy in getting data that the average value of systolic and diastolic pressure decreased significantly, while in the control group decreased but not as significant as acupuncture therapy that has been done researchers for 4 times therapy with a time of 4 days.

3. Acupuncture Therapy on Blood Pressure Decrease toward Elderly with Hypertension

   The results of this study is strengthened with the results of other statistical tests that serves to determine whether there are differences in systolic blood pressure measurements and diastole between the treatment group and the control group by using independent T test. After the independent T test statistic on control group post and treatment group by comparing the measurement of diastolic blood pressure obtained p = 0.026 (p <0.05). So, it can be concluded that Ho is rejected which means there is influence of acupuncture therapy to decrease blood pressure in elderly with hypertension at Panti Werdha Mojopahit Mojokerto. While in post treatment group and control group on result of measurement of systolic pressure got result p = 0.111 (p> 0.05) which means that Ho accepted which mean no effect of acupuncture therapy to decrease blood pressure in elderly with hypertension.

   Acupuncture therapy in hyperactivity syndrome Yang with Yin deficiency is more visible on the influence of diastolic blood pressure. While at systolic pressure there is no significant decrease in statistical test. It can be interpreted that in doing acupuncture therapy on Hyperactivity syndrome Yang with Yin deficiency more influence to decrease diastolic pressure.

   To get the maximum therapy results in dealing with acupuncture cases such as hypertension an acupuncturist is required to perform professional acupuncture therapy. In accordance with prescribed procedures starting from 4 methods of acupuncture examination include wang (observation), wen (auscultation / oxitation), wun (anamnesa), and cie (palpation) and 8 basic diagnoses (including Yin, Yang, Outer, In, Cold , Heat, Excess, Deficiency). With a precise and systematic examination, the diagnosis can be properly enforced so that the treatment or treatment program given is based on the patient's problem. Furthermore, if you find a case of acupuncture is severe then it can perform better acts of therapy.
IV. CONCLUSION

Blood pressure in the elderly after intervention showed that the average value of systolic and diastolic pressure has decreased significantly. While in the control group experienced an average decrease in systolic and diastolic pressure but not as significant in the treatment group who had been given acupuncture therapy once every 4 days for therapy in elderly with hypertension at Panti Werdha Mojopahit Mojokerto.

V. REFERENCES


