Indonesian Journal of Acupuncture
ISSN 3025-8405

Article

Acupuncture's Effect of PC6, LV3 Combined with YNSA in Essential Hypertension Cases (ICD 10: I10) Grade I,II

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SUBMISSION TRACK

Received: February 14, 2024
Final Revision: March 10, 2024
Available Online: April 18, 2024

KEYWORDS

Acupuncture, PC6, LV3, YNSA, Essential Hypertension

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ABSTRACT

Hypertension is the second highest cause of death in Indonesia (25.8%) in outpatients. Acupuncture has been used to treat various diseases including hypertension. The purpose of this study was to determine the acupuncture's effect of PC6 and LV3 combined with YNSA Ypsilon HT and LV points in cases of essential hypertension (ICD 10: I10) grade I, II. The study was conducted in Ngargorejo, Ngemplak, Boyolali from October 2018 to March 2019 using a design (RCT) or randomized experiment with 33 subjects, divided into experimental groups (17 people) and control groups (16 people) with SRS as a sampling technique. Mann-Whitney obtained p <0.05, which means that there was an acupuncture effect of PC6 and LV3 combined with YNSA Ypsilon HT and LV on blood pressure reduction. The systolic pressure was p <0.05 and the diastolic pressure was p> 0.05 in the control group. While the experimental group's systolic and diastolic pressures were p <0.05. It can conclude that PC6 and LV3 combined with YNSA Ypsilon HT and LV points had more effect on systolic and diastolic pressure reduction than sham acupuncture which only affected systolic pressure reduction with short-term effects.

I. INTRODUCTION

Hypertension is the highest cause of death in Indonesia (25.8%) in outpatients and the largest NCD disease in Central Java (55%)[1,2]. The increasing incidence is caused by poor lifestyle (lack of fiber consumption, consumption of foods high in calories, sodium, glucose, and fat), stress, and smoking. Improper treatment can increase the risk of complications such as stroke, coronary heart disease, and kidney failure, resulting in increased mortality and morbidity rates[3,4,5]. Hypertension can be treated with pharmacological therapy such as administering antihypertensive drugs (diuretics, vasodilators, sympathetic and angiotensin converting enzyme inhibitors, and beta-blockers)[6], however administering antihypertensive drugs can cause side effects such as coughing, indigestion, redness of the skin, dizziness and weight loss. Body[7].

The longer you take antihypertensive medication, the higher the risk of side effects[8]. Considering that there are many complications from hypertension if it is not treated properly as well as side effects from antihypertensive drugs, then management of hypertension with non-pharmacological therapy (lifestyle modification and complementary therapies such as acupuncture)[9].

Acupuncture is reported to be able to treat hypertension through neurohumoral regulation and regulation of cardiovascular function, induction of synthesis, and activation of nitric oxide (a blood pressure regulating vasodilator) from EDNO[10,11]. Research shows that at acupuncture points and meridians there is more NO and NOS, so acupuncture can increase blood flow, and cardiac output and cause axonal reflexes[12,13].

II. METHODS

The research was conducted in Ngargorejo Village, Ngemplak, Boyolali from October 2018-March 2019 with an RCT or random experiment design. Of the 40 research subjects, 7 people did not meet the inclusion criteria, namely they were not willing to be research subjects by receiving 10 treatments, did not meet the criteria for stage I, II hypertension according to JNC 7, and had non-essential hypertension. The final results were 33 research subjects who were then divided into an experimental group (17 people) and a control group (16 people). The sampling technique used was SRS. Blood pressure was measured before and after the intervention in each group.

The experimental group was given PC6, LV3 acupuncture therapy combined with YNSA Ypsilon points. HT and LV, while the control group was given sham treatment. Data analysis was carried out using SPSS 24, bivariate analysis using Wilcoxon and Mann-Whitney.

III. RESULT

A total of 33 study subjects were characterized in univariate (table 1) and bivariate (Table 2 and Table 3). Wilcoxon statistical test The control group results are their posttest with p <0.05. The results of the Mann-Whitney test showed that there was an effect of PC6, LV3 acupuncture combined with YNSA Ypsilon HT and LV points on cases of essential hypertension (ICD 10: I10) stages I and II in Ngargorejo Village, Ngemplak, Boyolali with the highest p-value being p = 0.046 and the lowest being p = 0.013 (p < 0.05):

Table 1. Characteristics of research subjects

Characters	N(%)
Gender (n, %)	
Man	5 (15.2%)
Woman	28 (84.8)
Occupation (n,%)	
housewives	9 (27.3%)
marketeers	10 (30.3%)
government employees	5 (15.2%)
laborer	8 (24.2%)
teachers	1 (3.3%)
Age (tahun) (n, %)	
35-40	5 (15.2%)
41-45	4 (12.1%)
46-50	7 (21.2%)
51-55	6 (18.2%)
56-60	5 (15.2%)
61-65	5 (15.2%)
66-70	1 (3.0%)
Systole before intervention(mean)	157.27 mmHg
Diastole before intervention(mean)	105.45 mmHg
Systole after intervention(mean)	141.06 mmHg
Diastole after intervention(mean)	93.94 mmHg

Group Wilcoxon test results experiments have an influence on systole and diastole pretest and posttest with p < 0.05. Test results Mann-Whitney was an influence PC6, LV3 combined acupuncture YNSA points Ypsilon HT and LV on cases of essential hypertension (ICD 10:I10) stages I and II in the Village Ngargorejo, Ngemplak, Boyolali with the

highest p value p = 0.046 and the lowest is p = 0.013 (p <0.05).

Table 2. Wilcoxon Test

Research Data	p
Systole pretest – posttest (control)	0.036
Diastole pretest – posttest (control)	0.070
Systole pretest – posttest (experiment)	<0.001
Diastole pretest – posttest (experiment)	0.001

Table 3. Mann-Whitney Test

Research Data	p
Systole pretest	0.041
Diastole pretest	0.046
Systole posttest	0.026
Diastole posttest	0.013

IV. DISCUSSION

Effect Mechanism Therapy Acupuncture against Decline Blood Pressure Several factors predispose to essential hypertension, based on research results, one predisposing factor is type gender, occupation, and age. Several studies shows women have more risk of developing hypertension compared man[14,15,16], associated with activity estrogen which protects resting blood pressure when there is stimulation of the sympathetic nerves, and increased HDL prevents atherosclerosis and hypertension. Incidence of hypertension. Most are aged >40 years, according to some literature, namely, those aged>40 years have a risk higher risk of hypertension due to to decline physiological functions of the body (thickening arterial walls, reduction elasticity of blood vessels, collagen buildup in muscles so that[17] narrowing occurs blood vessels, peripheral resistance, and decline filtration glomerulus)[18,19]. Apart from age and gender, occupation is also associated with hypertension, and workload can increase stress (Factor Psychology of hypertension)[20,21]. Excessive activity (fatigue) can increase EDRF, as indicated as NO can increase blood pressure, if there is excessive stimulation[22].

Effect Mechanism Acupuncture Therapy in Lowering Blood Pressure. The statistical test results showed p < 0.05, explaining the influence of PC6 (Neiguan), LV3 (Taichong) acupuncture therapy combined with YNSA (Yamamoto New Scalp Acupuncture) Ypsilon HT, LV points on reducing blood pressure. Acupuncture causes microtrauma which stimulates Mast cells to release NO, serotonin, norepinephrine, platelets, and bradykinin which are vasodilators and lower blood pressure. Through afferent nerves, acupuncture can deliver impulses to the IML and arcuate nucleus to release Beta endorphins to inhibit hypersympathetic to reduce RAA activity and NADPH and there was an increase in NO and a decrease in blood pressure [10,13,24,25,26,27].

Acupuncture needling method YNSA can activate A-delta and C nerve fibers which transmit impulses to the spine cord to secrete dynorphins, enkephalins, serotonin, dopamine, and norepinephrine in the hypothalamus, as well as endorphins and acetylcholine in the pituitary for blood pressure regulation [27,28,29]. YNSA's Ypsilon point also plays a role in stress management through the regulation of neurotransmitters and hormonal factors by the limbic system. Ypsilon can reduce HPA and SAM to inhibit excess adrenaline hormones, lowering blood pressure.

V. CONCLUSION

PC6 and LV3 acupuncture combined with YNSA Ypsilon HT and LV points had a greater effect on reducing systolic and diastolic pressure than sham acupuncture which only had an effect on reducing systolic pressure with a short-term effect. It is hoped that in future research, with a more varied number and character of subjects, quarantine will be carried out to control research subjects as well as measure ambulatory blood pressure.

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