

Combination of Acupuncture and Hypnotherapy on Blood Pressure Reduction

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ABSTRACT

Background: Hypertension is "the silent killer" the number 2 highest cause of death in Indonesia. One of the non-pharmacological therapies that can be used to reduce hypertension is acupuncture and hypnotherapy. This study aims to analyze the effectiveness of the combination of acupuncture and hypnotherapy (hypnotherapy) on lowering blood pressure.

Subjects and Method: This was a randomized controlled trial conducted at Dr. Singgih clinic, Kusuma Husada clinic, and Griya Sehat Sinergi, from March to September 2023. A total of 160 hypertensive patients were divided into four groups: (1) Acupuncture intervention group (n= 40); (2) Hypnotherapy intervention group (n= 40); (3) Hypnopuncture intervention group (n= 40); and (4) The control group was given standard care (n=40). The dependent variable was hypertension. The independent variable was hypnopuncture. The difference in the mean decrease in blood pressure of systole and diastole in each group was analyzed using the ANOVA test.

Results: Mean of systolic blood pressure was lower in the hypnopuncture group (Mean = 145.43; SD= 3.39) compared to the acupuncture (Mean= 154.55; SD= 7.42), hypnotherapy (Mean= 150.95; SD= 11.92), and control group (Mean= 177.22; SD= 7.87). Mean of diastolic blood pressure was lower in the hypnopuncture group (Mean = 86.47; SD= 1.57) compared to acupuncture (Mean= 87.25; SD= 10.34), hypnotherapy (Mean= 87.25; SD= 2.89), and control group (Mean= 95.03; SD= 2.90).

Conclusion: Hypnopuncture is effective in lowering systole and diastolic blood pressure in hypertensive patients.

Keywords: hypnotherapy, acupuncture, blood pressure, hypertensive patient

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BACKGROUND

Hypertension is known as high blood pressure and is often referred to as the silent killer because it occurs without signs and symptoms, so that patients do not know if they have hypertension, from the results of the study revealed that as many as 76.1% did not know that they had hypertension (Sutrisno et al., 2016).

Hypertension that is not treated properly can give rise to various complications of hypertension such as damage to the heart muscle (myocardial infarction), stroke, kidney failure, and death are considered the main causes of vascular disease in the brain (cerebrovascular) by 51% and death from heart and vascular disease (cardiovascular) by 45% (Verma et

al., 2021). Hypertension is diagnosed with nosis when a person's systolic blood pressure (SBP) \geq 140 mm Hg and/or diastolic blood pressure (DBP) \geq 90 mm Hg after repeated examinations (Unger et al., 2020).

Risk factors for hypertension are people with diabetes mellitus (15%-20%), dyslipidemia (increased low-density lipoprotein [LDL-C] cholesterol and triglycerides (30%), obesity (40%), high blood uric acid/hyperuricemia (25%) and metabolic syndrome (40%), as well as unhealthy lifestyle habits (e.g., smoking, high alcohol intake, sedentary lifestyle, family history, and high cholesterol levels) (Unger et al., 2020; Al-Noumani et al., 2019).

Cholesterol is a risk factor for hypertension that can be changed, the higher the cholesterol level, the higher the likelihood of hypertension. High cholesterol levels are experienced by many people with hypertension. According to Susilo et al. (2011) that blood pressure increases due to excessive cholesterol buildup on the walls of blood vessels.

The high incidence of hypertension, the low number of controlled hypertension sufferers, and the 3 dangers of complications due to hypertension, there is a need for pharmacological treatment combined with non-pharmacological treatment. Non-pharmacological treatments that can be used include treatment with traditional plants, reflexology, acupuncture, hypnotherapy, and others.

This study aims to analyze the effectiveness of the effect of the combination of acupuncture and hypnotherapy on the reduction of blood pressure.

SUBJECTS AND METHOD

1. Study Design

A RCT was conducted in Dr. Singgih clinic, Kusuma Husada clinic, and Griya Sehat

Sinergi, Central Java, Indonesia, from March to September 2023.

2. Population and Sample

The population and sample in this study were 160 hypertensive patients divided into four groups: (1) Acupuncture intervention group (n= 40); (2) Hypnotherapy intervention group (n= 40); (3) Hypnopunk intervention group (n= 40); and (4) Control group given standard care (n=40).

3. Study Variables

The dependent variable is hypertension. Independent variable of hypnopuncture.

4. Operational Definition of Variables

Hypertension is a systolic blood pressure $>$ 140 mmHg and diastolic \geq 90 mmHg. The measuring instrument is a Sphygmomanometer or sphygmomanometer. The measurement scale is continuous.

Acupuncture is the act of puncturing acupuncture points according to complaints and examination results to lower blood pressure. It is done every 2 times a week using a 1 cun needle. The measuring instrument is an observation sheet. The measurement scale is continuous.

Hypnotherapy is the administration of hypnotherapy 1 time followed by self-hypnosis using audio that is listened to every day at least 1 time for 10 days. The measuring instrument is an observation sheet. The measurement scale is continuous.

The combination of Acupuncture and Hypnotherapy is the act of pricking at acupuncture points according to complaints and examination results to lower blood pressure. It is carried out every 2 times a week using a 1 cun needle and hypnotherapy is given 1 time followed by self-hypnosis using audio that is listened to every day at least 1 time for 10 days. The measuring instrument is an observation

sheet. The measurement scale is continuous.

5. Study Instruments

Hypertension is measured using a sphygmomanometer or sphygmomanometer. Acupuncture, hypnotherapy, and hypnopuncture were measured using observation sheets.

6. Data analysis

The difference in the mean decrease in systole and diastole blood pressure in each group was analyzed using the ANOVA test.

7. Research Ethics

The ethics in this study are ethical permits, as well as informed consent that is signed and kept confidential during the research. Eric's permission for this research was obtained from the Health Research Ethics Committee of Kusuma Husada University

Surakarta No. 1354/UKH. L.02/EC/V/-2023.

RESULTS

1. Sample Characteristics

Table 1 shows that the majority of subjects are women as many as 84 patients (52.5%) and the average age of 45 to 50 years is 46 patients (28.75%).

Table 2 shows that the average subject is 56 years old with an age range ranging from 45 – 80 years. Before the intervention, the majority of subjects had an average blood pressure of 178.81 mmHg, a diastole of 96.85 mmHg, and a cholesterol level of 227.10 mg/dL. After the intervention, the majority of subjects had an average blood pressure of 157.04 mmHg, diastole of 88.18 mmHg, and cholesterol levels of 206.36 mg/dL.

Table 1. Subject characteristics by gender

Characteristic	Frequency (n)	Percentage (%)
Gender		
Law Law	76	47.50
Woman	84	52.50

Table 2. Characteristics of continuous data subjects

Characteristic	N	Mean	SD	Min	Max
Age (years)	160	56.16	7.43	45	80
Pre sistole (mm Hg)	160	178.81	9.84	150	200
Pre diastole (mm Hg)	160	96.85	2.79	90	105
Pre kolesterol (mg/dL)	160	227.10	13.25	200	256
Post sistole (mm Hg)	160	157.04	14.62	123	192
Post diastole (mm Hg)	160	88.18	6.94	78	150
Post kolesterol (mg/dL)	160	206.36	20.89	150	248

1. Bivariate Test

Table 3 shows that there was a difference in the mean level of systole blood pressure before and after the intervention in the acupuncture, hypnotherapy, hypnopuncture, and control groups. Before the intervention, the mean systole blood pressure was comparable between the acupuncture groups (Mean= 178.83; SD= 10.23), hypnotherapy group (Mean= 178.80; SD= 10.44),

hypnopunk group (Mean= 178.83; SD= 9.84), and the control group (Mean= 178.82; SD= 9.84), and this result is statistically insignificant ($p= 1,000$). After the intervention, the mean systole blood pressure was lower in the hypnopuncture group (Mean = 145.43; SD= 3.39) than the acupuncture group (Mean= 154.55; SD= 7.42), hypnotherapy group (Mean= 150.95; SD= 11.92), as well as the control group

(Mean= 177.22; SD= 7.87), and this result is statistically significant (p <0.001).

Table 3. Differences in systole blood pressure before and after the intervention in the acupuncture, hypnotherapy, hypnopuncture, and control groups

Group	N	Maen (mm Hg)	SD	p
Pre Intervention				
Akupuntur	160	178.83	10.23	1.000
Hypnotherapy	160	178.80	10.44	
Hipnopuncture	160	178.83	9.84	
Control	160	178.82	9.84	
Post Intervention				
Akupuntur	160	154.55	7.42	<0.001
Hypnotherapy	160	150.95	11.95	
Hipnopuncture	160	145.43	3.39	
Control	160	177.22	7.87	

Table 4 shows that there was a difference in the mean level of diastolic blood pressure before and after the intervention in the acupuncture, hypnotherapy, hypnopuncture, and control groups. Before the intervention, the mean diastole blood pressure was comparable between the acupuncture groups (Mean = 96.88; SD= 3.08), hypnotherapy group (Mean= 96.85; SD= 2.62), hypnopunk group (Mean= 96.83; SD= 3.08), and control group

(Mean= 96.85; SD= 2.56), and this result was statistically insignificant (p= 0.999). After the intervention, the mean diastole blood pressure was lower in the hypnopuncture group (Mean = 86.47; SD= 1.57) than the acupuncture group (Mean= 87.25; SD= 10.34), hypnotherapy group (Mean= 87.25; SD= 2.89), as well as the control group (Mean= 95.03; SD= 2.90), and this result was statistically significant (p <0.001).

Table 4. Differences in diastole blood pressure before and after the intervention in the acupuncture, hypnotherapy, hypnotherapy, and control groups

Group	N	Mean (mmHg)	SD	p
Pre Intervention				
Akupuntur	160	96.88	3.08	0.999
Hypnotherapy	160	96.85	2.62	
Hipnopuncture	160	96.83	3.08	
Control	160	96.85	2.56	
Post Intervention				
Akupuntur	160	87.25	10.34	<0.001
Hypnotherapy	160	87.25	2.89	
Hipnopuncture	160	86.47	1.52	
Control	160	95.03	2.90	

Table 6 shows that the results of the post hoc test with the highest mean difference were found in the hypnopuncture vs control group for systole blood pressure (Mean= -1.81; p<0.001); diastole blood pressure

(Mean= -11.05; p<0.001). This shows that the combination of hypnotherapy and acupuncture (hypnopunk) intervention is the most effective in lowering systole and

diastole blood pressure in hypertensive patients.

Table 6. Results of Post Hoc tests of systole and diastole blood pressure in the acupuncture, hypnotherapy, hypnopuncture, and control groups

Group	SBP (mmHg)		Diastolic (mmHg)	
	SMD	p	SMD	p
Acupuncture vs Hypnotherapy	-3.60	0.315	-0.78	1.000
Acupuncture vs Hipnopuncture	-9.16	<0.001	-3.28	0.060
Acupuncture vs Control	-22.68	<0.001	-7.78	<0.001
Hypnotherapy vs Control	-26.28	<0.001	-8.55	<0.001
Hipnopuncture vs Control	-31.80	<0.001	-11.05	<0.001
Hypnotherapy vs Hypnopuncture	-5.53	0.019	-2.50	0.289

DISCUSSION

This study shows that acupuncture, hypnotherapy, and hypoacupuncture are significantly effective in lowering the level of SBP and DBP in hypertensive patients. The intervention that has the most effect on reducing blood pressure levels is hypnoacupuncture which is a combination of hypnotherapy interventions and acupuncture.

One of the treatments for hypertension is by using acupuncture. Acupuncture therapy has important benefits for treating hypertension, including reducing headaches due to hypertension, reducing tension due to stress, and can increase immunity to environmental changes or diseases. Because acupuncture therapy can harmonize the flow of Qi (energy) and blood in the body so that it can lower blood pressure (Hasnah and Ekawati, 2016). In acupuncture therapy to overcome hypertension, special acupuncture points can be used, including Wu Shu points, Yuan points, and He points. These points include Shenmen (HT 7), Fuliu (KI 7), Taichong (LR 3), Xingjian (LR 2) and Yinlingquan (SP 9). Each of these points can be used according to the symptoms complained of from hypertensive patients (Jie, 2008).

Acupuncture therapy in Chinese medicine to lower blood pressure, namely by stimulating acupuncture points to

conduct and facilitate Qi (vital energy) with the aim of balancing Yin Yang so that the Cang Fu organ can carry out its functions normally (Jie, 2008). Acupuncture therapy to lower blood pressure, is done 3 times a week (Khasanah, 2018) for 4 weeks, because it has been proven through research on hypertension that it can significantly reduce systolic and diastolic blood pressure in hypertensive patients (Trisnawati, 2019).

Based on mechanistic laboratory studies, acupuncture modulates the neuro-humoral regulatory system and cardiovascular function (Li et al., 2015). Research by Wang et al. (2013) explained the mechanism of acupuncture in reducing blood pressure in hypertensive patients, including decreased plasma renin, aldosterone, and angiotensin II activity, increased sodium secretion and changes in plasma norepinephrine, serotonin, and endorphin levels.

Research related to the effect of hypnotherapy on the reduction of blood pressure in hypertensive patients, showed that there was a significant influence of the application of hypnotherapy on the reduction of blood pressure in hypertensive patients, it was seen that 90% of the subjects involved showed a state of relaxation, then a decrease in systolic and diastolic blood pressure (Sutrisno et al., 2016).

The effect of hypnotherapy on lowering blood pressure occurs because physiologically when a person enters hypnosis relaxation, the thought waves will enter alpha waves with a frequency of 7-14 hertz or deeper into theta waves with a frequency of 4-7 hertz. A person whose mind enters this wave can cause the brain to produce endorphin hormones which cause a sensation of comfort and relaxation, so that the body's metabolism becomes better and there is an autonomic nervous response that causes a decrease in blood pressure, pulse and breathing (Rifki dan Yosdimiyati, 2018).

A person who is in a state of relaxation, the neuroendocrine system will decrease the levels of cortisol, epinephrine and norepinephrine. Cortisol levels in the blood cause vasoconstriction of blood vessels. The decrease in epinephrine and norepinephrine will act directly on the alpha adrenergic receptors of the vascular smooth muscle, thus causing vasodilation of blood vessels. Vasodilation caused by a decrease in epinephrine and norepinephrine levels can reduce total peripheral pressure which will cause a decrease in blood pressure (Nurprasetyo, 2016).

The limitations of this study include: (1) Patients receive intervention in different places, the situation and conditions of therapy services cannot be controlled and run naturally, but this can affect the results obtained; and (2) Factors such as acceptance to carry out acupuncture, hypnotherapy process, age and so on have not been taken into account. This study has not examined these other determinants that may affect the psychological condition of the subjects and the behavior of the subjects who receive the intervention.

This RCT concluded that hypnopuncture was effective in lowering systole and

diastolic blood pressure levels in hypertensive patients.

AUTHOR CONTRIBUTION

All authors contributed to the writing of the manuscript.

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This study is self-funded.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

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