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THE EFFECT OF YAMAMOTO NEW SCALP ACUPUNCTURE THERAPY ON LOWERING THE BLOOD PRESSURE OF HYPERTENSION PATIENTS AT A PRIMARY CARE SERVICE FAMILY MEDICINE ACUPUNCTURE CLINIC "XYZ" JAKARTA

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ABSTRACT

Hypertension can hinder the development of social and economic stability and can become a major threat to the structure of healthcare services. The management of hypertension cases in primary care can be performed through a family medicine approach by taking into account the potential of the family as the supporting resource and/or obstacles to the successful management of hypertension patients. This can be performed with acupuncture methods, one of which is the Yamamoto New Scalp Acupuncture (YNSA) method. **Objective:** To determine the effect of acupuncture therapy using YNSA method on lowering the blood pressure of patients with hypertension at the Primary Care Service Family Medicine Clinic "XYZ, Jakarta." **Methods:** This quantitative research uses pre-experimental and post-experimental nonrandom purposive sampling techniques which yield a total sample of 76 respondents. The sample has met certain criteria and is divided into 2 groups: the intervention group and the control group. The assessment was carried out for 7 days for each group. **Conclusion:** The use of the YNSA method for patients with hypertension in the two groups had significantly different results during pre- and post-treatment with $p < 0.05$. This shows that there is a significant difference in the two groups from the second to the seventh day.

Keywords: acupuncture, YNSA, hypertension, primary care family medicine

Introduction

Hypertension is another name for high blood pressure. In hypertension, there is an increase in systolic blood pressure exceeding 140 mmHg and in diastolic blood pressure exceeding 90 mmHg based on blood pressure measurements (ISH, 2019). Hypertension can hinder the development of social and economic stability and becomes a major threat to the structure of healthcare services (Li, 2019). Based on Riskesdas data in 2018, there was an increase from 27.8% cases of hypertension in 2013 to 34.1% in 2018 from a total population of 260 million people in Indonesia. This shows that there has been an increase of 6.3% of hypertension cases in Indonesia in the last 5 years (Ministry of Health, 2019). Common complications that often occur in patients with hypertension include coronary heart disease (CHD) and kidney failure. The management of hypertension can be performed through pharmacological and non-pharmacological approaches. One of the non-pharmacological treatments of hypertension is acupuncture (Nuraini, 2015).

One of the micro-acupuncture techniques that have been applied is through head acupuncture or YNSA which was invented by Doctor Toshikatsu Yamamoto in 1973. YNSA is a microsystem whose action is performed through inserting needles through acupuncture points in the skull in order to stimulate reflex areas of the body. Currently YNSA is often used for the treatment of neurological disorders, acute and chronic pain, as well as functional disorders such as hypertension. This technique has no side effects and has great potential to reduce disorders in the body. At present, YNSA has been widely acknowledged in various countries such as Japan, Europe, and the United States (Barreiros, 2019). Based on this background, this research develops the theme of the effect of YNSA acupuncture therapy method on lowering the blood pressure of patients with hypertension at the Primary Service Family Medicine Clinic "XYZ", Jakarta.

Literature Review

Hypertension

In hypertension, there is an increase in systolic blood pressure exceeding 140 mmHg and in diastolic blood pressure exceeding 90 mmHg based on blood pressure measurements (ISH, 2019). There are two causes of hypertension: primary (essential) and secondary hypertension (Wahl, 2019). Hypertension in Chinese medicine is a disorder of Qi stagnation and blood stagnation that results in Yin deficiency and Yang excess. The definitions in Eastern medicine concepts are indeed different from those of Western medicine (Wang, 2014).

Category	Systolic (mm Hg)	Diastolic (mm Hg)
Optimal	< 120	< 80
Normal	120-129	80-84
High normal	130-139	85-89
Hypertension:		
Grade 1 (mild)	140-159	90-99
Grade 2 (moderate)	150-179	100-109
Grade 3 (severe)	≥ 180	≥ 10
Isolated systolic hypertension*	≥ 140	< 90

Table 1 European Society of Cardiology and European Society of Hypertension (Williams, 2018)

Acupuncture

Acupuncture has been used to treat a number of cardiovascular diseases including hypertension. In the last three decades, there have been a number of clinical studies focusing on the effectiveness of acupuncture to lower blood pressure in essential hypertension; furthermore, since the 1950s, various publications have reported that acupuncture is effectively helpful in hypertension treatments (Zhou, 2019).

Yamamoto New Scalp Acupuncture (YNSA)

Yamamoto New Scalp Acupuncture (YNSA) is a scalp micro-acupuncture technique developed by a Japanese neurologist, Dr. Toshikatsu Yamamoto, in 1960. Dr. Yamamoto discovered this independent acupuncture system which was initially applied to various health cases including neurological and central nervous system (CNS) disorders which also included hypertension cases (Patrick, 2018).

The division of the Yamamoto New Scalp Acupuncture points consists of:
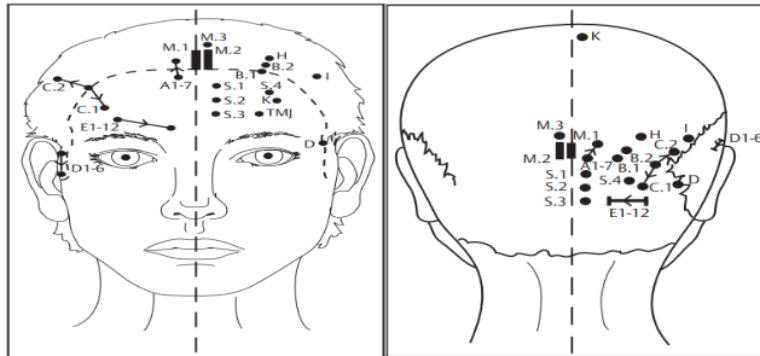
(1) Basic Points

Fig 1. YNSA Basic Points (Richard, 2011)

Basic points are used for disorders in certain areas which are divided according to clinical symptoms and manifestations as shown in Figure 1: A1-7; Cervical, B1-2; Shoulder and Foot, C1-2; Upper Extremity and Lower Extremity, D1–6; Lumbar-sacrum, E1-12; Thoracal, F; Sciatic Nerve, G1-3; Medial Knee, Patella, Lateral knee, H-I, K; Lumbar Spine, J; Foot

(2) Brain Points (M)

The brain points with "M" symbol are used for disorders in the basal ganglia areas, Limbic System, N I-XII, Cerebrum and Cerebellum, as shown in Figure 1 (Richard, 2011).
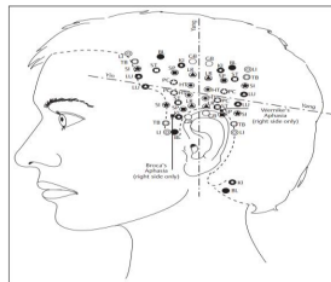
(3) Y-Psilon Point

Fig 2. YNSA Y-Psilon point (Richard. A, 2011)

The Y-Psilon consists of 12 points, corresponding to the 12 principal meridians in Chinese medicine which are located in the temporal part as illustrated in Figure 2 (Richard, 2011).

Primary Healthcare Service Family Medicine

Family medicine is one of the branches of medical sciences that is applied in the primary service of family medicine; hence the term family medicine. Family medicine is a discipline that covers the entire spectrum of medical sciences which are orientated to providing first-rate health services in a sustainable and comprehensive manner to a unit of individuals, families, and communities by taking into account the environmental, economic, and socio-cultural factors (PB IDI, 1983). WHO has programmed acupuncture training and education for physicians in primary care; thus, acupuncture has been included to the primary care services which can expand the access to integrated care. In addition, acupuncture can effectively assist clinical care for troublesome common health disorders. This shows that acupuncture is a proper treatment model that can help and be applied in primary care family medicine (More et al., 2017).

Research Method

The quantitative research method is used with pre-experimental and post-experimental nonrandom purposive sampling techniques which yield a total sample of 76 respondents. The sample has met certain criteria and is divided into 2 groups: the YNSA intervention group and the control group. Research period is from 15 March 2021 – 15 May 2021. The assessment was carried out for 7 days for each group.

Research Result

The data were obtained from the 76 respondents who are evenly divided into the two groups: the YNSA intervention group and the control group, each of which consists of 38 respondents. The results of the data analyses are presented in the following sections.

a.   **YNSA Intervention Group based on Gender**
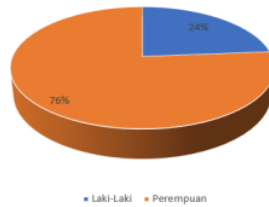
Diag 1. YNSA Intervention Group, Gender

Diagram 1 shows that the gender group with the highest YNSA intervention in the treatments of patients with hypertension is the female group with 29 respondents (76%).

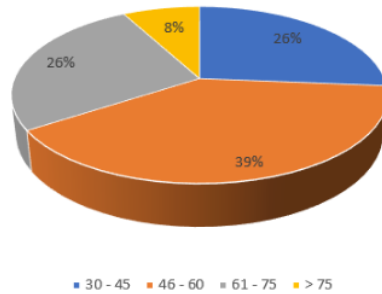b.   **Control Group based on Gender**
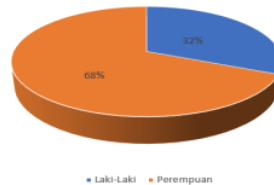
Diag 2. Control Group, Gender

Diagram 2 shows that the gender group that has the highest number of patients with hypertension in the control group is the female group with 26 respondents (68%).

c. **YNSA Intervention Group based on Age**

■ 30 - 45   ■ 46 - 60   ■ 61 - 75   ■ > 75

Diag 3. YNSA Intervention Group, Age

Diagram 3 shows that the age group with the highest YNSA intervention in the treatments of patients with hypertension is the 40-60 age group with 15 respondents (39%).

d. **Control Group based on Age**

■ 30 - 45   ■ 46 - 60   ■ 61 - 75   ■ > 75

Diag. 3. Control Group based on Age

Diagram 4 shows that age group that has the highest number of patients with hypertension in the control group is the 35-45 age group with 15 respondents (39%).
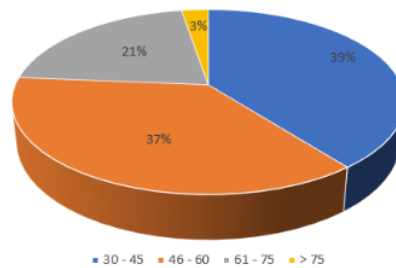
e. YNSA Intervention Group based on Age prior to YNSA Therapy

No	Age (yo)	Category	N	(%)
1	30 - 45	High Normal	4	11%
		Hypertension grade I	6	16%
2	46 - 60	High Normal	3	8%
		Hypertension grade I	12	32%
3	61 - 75	High Normal	1	3%
		Hypertension grade I	9	24%
4	> 75	High Normal	0	0%
		Hypertension grade I	3	8%
Total			38	100%

Table 2. YNSA Intervention Groups based on Age prior to YNSA Therapy

Table 2 shows that the age group with the highest YNSA intervention in the treatments of patients with hypertension is the 46-60 age group with 12 respondents (32%) having hypertension grade I.

d. Control Group based on Age prior to Therapy

No	Age (yo)	Category	N	(%)
1	30 - 45	High Normal	7	18%
		Hypertension grade I	8	21%
2	46 - 60	High Normal	4	11%
		Hypertension grade I	10	26%
3	61 - 75	High Normal	6	16%
		Hypertension grade I	2	5%
4	> 75	High Normal	1	3%
		Hypertension grade I	0	0%
Total			38	100%

Table 3. Control Group, Age, prior to Therapy

Table 3 shows that in the control group, the age group with the highest number of patients with hypertension is the 46-60 age group with 10 respondents (26%) having hypertension grade I.

e. **YNSA Intervention Group based on Age after YNSA Therapy**

No	Age (yo)	Category	N	(%)
1	30 - 45	Optimal	2	5%
		Normal	4	11%
		High Normal	3	8%
		Hypertension grade 1	1	3%
		Hypertension grade 2	0	0%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	0	0%
2	46 - 60	Optimal	6	16%
		Normal	4	11%
		High Normal	3	8%
		Hypertension grade 1	0	0%
		Hypertension grade 2	0	0%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	2	5%
3	61 - 75	Optimal	4	11%
		Normal	5	13%
		High Normal	0	0%
		Hypertension grade 1	0	0%
		Hypertension grade 2	1	3%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	0	0%
4	> 75	Optimal	1	3%
		Normal	1	3%
		High Normal	0	0%
		Hypertension grade 1	0	0%
		Hypertension grade 2	0	0%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	1	3%
Total			38	100%

Table 4. YNSA Intervention Groups based on Age after YNSA Therapy

Table 4 shows that the group with the highest YNSA intervention based on age is able to reach the optimum category of 6 people (16%) which can be found in the 46-60 age group.

f. Characteristics of Control Group based on Age after Therapy

No	Age (yo)	Category	N	(%)
1	30 - 45	Optimal	0	0%
		Normal	2	5%
		High Normal	4	11%
		Hypertension grade 1	2	5%
		Hypertension grade 2	4	11%
		Hypertension grade 3	2	5%
		Isolated Systolic Hypertension	1	3%
2	46 - 60	Optimal	0	0%
		Normal	3	8%
		High Normal	4	11%
		Hypertension grade 1	4	11%
		Hypertension grade 2	1	3%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	2	5%
3	61 - 75	Optimal	0	0%
		Normal	0	0%
		High Normal	2	5%
		Hypertension grade 1	3	8%
		Hypertension grade 2	2	5%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	1	3%
4	> 75	Optimal	0	0%
		Normal	0	0%
		High Normal	0	0%
		Hypertension grade 1	0	0%
		Hypertension grade 2	1	3%
		Hypertension grade 3	0	0%
		Isolated Systolic Hypertension	0	0%
Total			38	100%

Table 5. Control Group based on Age after Acupuncture Therapy

Table 5 shows that in the control group, the age group with the highest achievement in the High Normal category after non-YNSA therapy can be found in the 30-60 age group with 4 respondents (11%), while the achievement in the optimum category is 0%.

g. Assessment of the Mean of Systolic Blood Pressure Measurements

Day	Method	N	Mean Systole	Std. Deviation	Std. Error Mean
Post Day 1	YNSA	38	129.053	15.6169	2.5334
	Control	38	135.263	17.0.114	2.7596
Post Day 2	YNSA	38	130.447	15.3846	2.4957
	Control	38	146.211	13.6761	2.2186
Post Day 3	YNSA	38	129.763	15.5275	2.5189
	Control	38	146.632	16.6107	2.6946
Post Day 4	YNSA	38	129.105	16.4215	2.6639
	Control	38	150.500	14.3635	2.3301
Post Day 5	YNSA	38	126.526	16.2460	2.6354
	Control	38	148.132	16.1466	2.6193
Post Day 6	YNSA	38	121.921	13.6132	2.2083
	Control	38	145.000	14.4652	2.3466
Post Day 7	YNSA	38	123.711	11.9456	1.9378
	Control	38	146.447	15.0723	2.4450
Pre-Treatment	YNSA	38	147.105	7.9416	1.2883
	Control	38	141.789	8.7183	1.4143

Table 6. The Assessment of the Mean of Systolic Blood Pressure Measurements

Table 6 shows the details of the systolic blood pressure based on the 76 respondents in pre- and post-treatment in the YNSA intervention group and in the control group from the second to the seventh day in each group. The mean value of systolic blood pressure in the YNSA intervention group was 147,105 with the standard deviation of 7.9416, and the standard error of the mean was 1.2883. However, the control group had the mean systolic blood pressure value of 141,789 with the standard deviation of 8.7183, and the standard error of the mean is 1.4143.

h. Independent Test Comparison of Systolic Blood Pressure Measurement

Independent Test	Pre-Treatment	Post Treatment (Day)						
		1	2	3	4	5	6	7
MWUT	472.000	602.000	303.500	298.500	215.500	205.500	158.500	160.000
Z	-2.604	-1.249	-4.351	-4.406	-5.266	-5.371	-5.860	-5.844
Signifikansi (2-tailed)	0.009	0.211[Ns]	0.000	0.000	0.000	0.000	0.000	0.000

Table 7. Independent Test Comparison of Systolic Blood Pressure Measurements

Significant: $p < 0.05$, **Ns:** Not significant

Table 7 shows that the two groups differed significantly in pre- and post-treatment from the second to the seventh day with $p < 0.05$.

Discussion

The research data were obtained by measuring the blood pressure of the respondents who came to the XYZ Primary Service Family Medicine acupuncture clinic, Jakarta, between March and May 2021. After the data collection process, 76 respondents were obtained and grouped into two: the YNSA acupuncture intervention group and the control group, each of which has 38 respondents. The YNSA intervention group experienced the needle insertions following YNSA scientific rules, while the control group experience no needle insertions. YNSA is somatotopic, so it is able to describe the representative relationship of certain anatomical and functional areas of the body such as the motor and sensory areas of the brain which are specific areas of the cortex that are responsible for motor and sensory control of various areas of the body through the correspondence points of the central nervous system whose efficacy and procedure have been reported to be similar to Chinese acupuncture in general. Animal testing and clinical trials have also shown that the antihypertensive effect with a proper selection of points is one of the main factors that influence blood pressure lowering processes. This means that YNSA can contribute to the mechanisms of hypertension. YNSA can lower the blood pressure and protect target organs (Yamamoto, 2017).

Conclusion

The use of YNSA method for patients with hypertension in the two groups had significantly different results during pre- and post-treatment with $p < 0.05$. This shows that there is a significant difference in the two groups from the second to the seventh day. The mean value of systolic blood pressure in the YNSA intervention group was 147,105 with the standard deviation of 7.9416, and the standard error of the mean was 1.2883. Nevertheless, the control group without YNSA intervention had the mean systolic blood pressure value of 141.789 with the standard deviation of 8.7183, and the standard error of the mean is 1.4143. The findings indicate that the intervention with Yamamoto New Scalp Acupuncture was proven to significantly lower blood pressure when compared to the treatment before the intervention with YNSA. This means YNSA was proven to significantly lower the blood pressure.

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