EFFICACY OF COMBINATION OF ACUPUNCTURE AND HYPNOTHERAPY IN REDUCING CHOLESTEROL LEVEL

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ABSTRACT

Background: The prevalence of hypercholesterolemia in Indonesia tends to increase. Hypercholesterolemia can increase the risk of atherosclerosis, coronary heart disease, pancreatitis (inflammation of the pancreas), diabetes mellitus, thyroid disorders, liver disease and kidney disease. Non-pharmacological therapy can be used to lower cholesterol levels such as acupuncture and hypnotherapy. This study aimed to determine the efficacy of a combination of acupuncture and hypnotherapy (in short, hypnopuncture) in reducing cholesterol level.
Subjects and Method: This was a randomized controlled trial conducted in three clinics, Klinik Dr. Singgih, Klinik Kusuma Husada and Griya Sehat Sinergi, Surakarta, Indonesia, from March to September 2023. A total of 160 hypercholesterolemia patients were divided into four groups: (1) Acupuncture intervention group; (2) Hypnotherapy intervention group; (3) Hypnopuncture intervention group; and (4) Control group given standard care. The dependent variable is cholesterol level. The independent variable is hypnopuncture. Cholesterol level was digitally checked. The data were analyzed using ANOVA test.
Results: The average cholesterol level was lower in the hypnopuncture group (Mean= 184.50; SD=12.10) than the acupuncture group (Mean=195.30; SD=10.40), hypnotherapy group (Mean=217.85; SD=10.49), the control group (Mean=227.80; SD=13.85), and the results are statistically significant ($p < 0.001$).
Conclusion: Hypnopuncture is effective in reducing cholesterol level in hypercholesterolemia patients.

Keywords: Hypnotherapy, acupuncture, hypnopuncture, hypercholesterolemia.

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BACKGROUND

Cholesterol is a waxy substance that is scientifically produced by the body (Anggraeni, 2016). High levels of cholesterol in the blood is a serious problem because it is a risk factor for various non-communicable diseases such as heart disease, stroke, cholesterol, and diabetes mellitus. Risk of arteriosclerosis which is a cause of coronary heart disease (CHD) will increase when the total cholesterol level in the blood exceeds the normal limit (Yoefantara dan Santi, 2017).

Results of Riskesdas 2013 (Kemenkes RI, 2013) show that the proportion of the Indonesian population with cholesterol levels above normal is higher in women, namely 39.6% compared to 30% for men. Several factors that influence total cholesterol levels are a high-fiber diet, a high-fat diet, smoking habits,

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gender, obesity, and physical activity.

Hypercholesterol in Indonesia tends to increase. The MONICA (Monitoring Trends and Determinants of Cardiovascular Disease) I 1988 and MONICA II 1993 in Jakarta showed an increase in the prevalence of hypercholesterolemia from 13.4% to 16.2% in the female population and 11.2% to 14% in the male population. (Jempormase *et al.,* 2016). Meanwhile, based on data from Riskesdas (Riset Kesehatan Dasar) in 2013, the proportion of the Indonesian population with total cholesterol levels above normal was higher in women at 39.6% and in urban areas it was higher than in rural areas. (Kemenkes RI, 2013).

Hypercholesterolemia can occur due to genetics and an unhealthy lifestyle, ranging from an unbalanced diet to a lack of exercise. Other influencing factors are age and gender. High cholesterol levels can be caused by high cholesterol synthesis and cholesterol absorption and also by consuming foods high in fat and carbohydrates (Akhfiyah, 2017; Hernawati *et al.,* 2013).

Hypercholesterolemia is high in Indonesia, so there is a need for pharmacological treatment combined with non-pharmacological treatment. Non-pharmaco logical treatments that can be used include treatment with traditional plants, reflexlogy, acupuncture, hypno therapy, and others.

This study aimed to analyze the effectiveness of the combination of acupuncture and hypnotherapy in reducing cholesterol levels.

SUBJECTS AND METHOD

1. Study Design

The RCT research was conducted in Klink Dr. Singgih, Klinik Kusuma Husada, and Griya Sehat Sinergi from March to September 2023.

2. Population and Sample

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

3. Study Variables

The dependent variable is cholesterol. Independent variable hypnopuncture.

4. Operational Definition of Variables

Cholesterol is a beneficial fat for the human body. However, if the levels in the body are too high, cholesterol will build up in the blood vessels and disrupt blood flow. The measuring instrument is a digital check. The measurement scale is continuous.

Acupuncture is the act of needling acupuncture points according to complaints and examination results to reduce blood pressure. Performed twice a week using a 1 cun needle. The measuring tool is an observation sheet. The measurement scale is continuous.

Hypnotherapy is giving hypnotherapy once followed by self-hypnosis using audio which is listened to every day at least once for 10 days. The measuring tool is an observation sheet. The measurement scale is continuous.

Combination of acupuncture and hypnotherapy is the act of needling acupuncture points according to

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complaints and examination results to reduce blood pressure. Performed twice a week using a 1 cun needle and giving hypnotherapy once followed by self-hypnosis using audio which is listened to every day at least once for 10 days. The measuring tool is an observation sheet. The measurement scale is continuous.

5. Study Instruments

Cholesterol is measured using a digital check. Acupuncture, hypnotherapy and hypnopuncture were measured using observation sheets.

6. Data analysis

Differences in the average reduction in cholesterol levels in each group were analyzed using the ANOVA test.

7. Research Ethics

Ethics in this research, namely an ethical permission letter, as well as informed consent which was signed and kept confidential during the research. Eric's permission letter for this research was obtained from the Health Research Ethics Committee of Universitas Kusuma Husada, Surakarta No. 1354/UKH.L.02/EC/V/-2023.

RESULTS

1. Sample Characteristics

Table 1 shows that the majority of subjects were women, 84 patients (52.5%) and an average age of 45 to 50 years, 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 systolic blood pressure of 178.81 mmHg, diastole of 96.85 mmHg, and cholesterol levels of 227.10 mg/dL. After the intervention, the majority of subjects had an average systolic blood pressure of 157.04 mmHg, diastole of 88.18 mmHg, and cholesterol levels of 206.36 mg/dL.

Table 1. Subject characteristics based on gender

Characteristics	Frequency (n)	Percentage (%)
Gender		
Man	76	47.50
Woman	84	52.50

Table 2. Characteristics of continuous data subjects

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

2. Bivariate Test

Table 3 shows that there are differences in mean cholesterol levels before and after the intervention in the

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acupuncture, hypnotherapy, hypnopuncture, and control groups. Before the intervention, the mean cholesterol levels were comparable between the acupuncture group (Mean= 227.15; SD= 10.45), hypnotherapy group (Mean= 227.10; SD= 12.27), hypnopuncture group (Mean= 227.13; SD= 14.92), and control group (Mean= 227.03; SD= 15.22), and this result is not statistically significant (p= 1.000). After the intervention, the average cholesterol level was lower in the hypnopuncture group (Mean= 184.50; SD= 12.10) than in the acupuncture group (Mean= 195.30; SD= 10.40), hypnotherapy group (Mean= 217.85; SD= 10.49), or control group (Mean= 227.80; SD= 13.85), and this result is statistically significant (p <0.001).

Table 3. Differences in cholesterol levels before and after intervention in the acupuncture group, hypnotherapy group, hypnopuncture group, and control group

Group	N	Maen (mg/dL)	SD	p
Pre-Intervention				
Acupuncture	160	227.15	10.45	1.000
Hypnotherapy	160	227.10	12.27	
Hypnopuncture	160	227.13	14.92	
Control	160	227.03	15.22	
Post Intervention				
Acupuncture	160	195.30	10.40	<0.001
Hypnotherapy	160	217.85	10.49	
Hypnopuncture	160	184.50	12.10	
Control	160	227.80	13.85	

Table 6 shows that the post hoc test results with the highest mean difference were in the hypnopuncture vs control group for cholesterol levels (Mean= -43.30; p<0.001). This shows that a combination of hypnotherapy and acupuncture (hypnopuncture) intervention is the most effective in reducing cholesterol levels in hypercholesterolemia patients.

Table 6. Post hoc test results for cholesterol levels in the acupuncture group, hypnotherapy group, hypnopuncture group and control group

Group	Cholesterol (mg/ dL)	
	Maen	p
Acupuncture and Hypnotherapy	22.55	<0.001
Acupuncture vs Hypnopuncture	-10.80	<0.001
Acupuncture and Control	-32.50	<0.001
Hypnotherapy vs Control	-9.95	0.001
Hypnopuncture vs Control	-43.30	<0.001
Hypnotherapy vs Hypnopuncture	-33.35	<0.001

This research shows that giving acupuncture, hypnotherapy, and hypoacupuncture is significantly effective in reducing cholesterol levels in hypercholesterolemia patients. The intervention that has the most

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influence on reducing cholesterol levels is hypnoacupuncture which is a combination of hypnotherapy and acupuncture interventions.

According to the TCM view, hypercholesterolemia is caused by unhealthy lifestyles and food patterns. Emotional stress factors play an important role in the development of this disease. Excessive emotional stress can cause liver Qi stagnation and heartburn, which can disrupt the Yin-Yang balance (Gendo, 2006). The principle of acupuncture is to align the flow of Qi (energy) in the meridians which can control our body functions. One of the methods of acupuncture therapy is that it can clear up accumulated phlegm and block Qi so that it can reduce total cholesterol levels (Jin, 2004).

In sufferers of hypercholesterolemia, acupuncture points will influence the synthesis of endogenous cholesterol and triglycerides in the liver. This occurs partly through stimulation of pancreatic secretion due to puncture of the Gongsun and Sanyinjiao points. The Sanyinjiao point and the Zhongwan point influence the digestion, absorption, and elimination of fats and carbohydrates from food. Decreased endogenous triglyceride synthesis is associated with the Sanyinjiao point which is known to influence insulin secretion. Decreased insulin secretion, especially in obese sufferers, can cause a decrease in endogenous triglyceride synthesis resulting in a decrease in triglyceride levels in plasma (Sriwidodo, 2010).

Limitations in this research include: (1) Patients receive interventions in different places, the situation and conditions of therapy services cannot be controlled and occur naturally, but this can influence the results obtained; and (2) Factors such as acceptance of acupuncture, hypnotherapy process, age and so on have not been taken into account. This research has not examined these other determinants that might influence the psychological condition of subjects and the behavior of subjects who receive intervention.

This study with a Randomized Controlled Trial (RCT) design concluded that hypnopuncture was effective in reducing cholesterol levels in hypercholesterolemia patients.

AUTHOR CONTRIBUTION

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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