



Application of Cupping Therapy with Ginger Aromatherapy on Reducing Cholesterol Level among Patients with Hypercholesterolemia

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Abstract

Hypercholesterolemia is a significant risk factor for cardiovascular disease. Cholesterol can interfere with and change blood vessels' structure, resulting in impaired endothelial function causing lesions, plaques, occlusion, and embolism. Cupping therapy with ginger aromatherapy is one alternative treatment for hypercholesterolemia. It improved lipid profile levels. The study aimed to examine the effect of cupping therapy with ginger aromatherapy on reducing the lipid profile levels among hypercholesterolemia patients. This true experimental study design, pre-test, and post-test with non-equivalent control group design was applied in this study. Thirty samples were selected into the experimental group and the control group. The intervention group received the cupping therapy with ginger aromatherapy, while the control group only received the 10 gr simvastatin drug per day. The lipid profile levels were measured on day 1 and day 21. The result showed a significant difference between the experimental group and the control group with a p-value < 0.05. In conclusion, it was found that cupping therapy with ginger aromatherapy for 21 days was effective in reducing lipid profile levels among hypercholesterolemia patients. Further researchers are expected to develop research on cupping therapy's benefits with ginger aromatherapy to reduce lipid profiles or other pathological conditions.

Keywords: cupping therapy, ginger aromatherapy, lipid profile, hypercholesterolemia.



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INTRODUCTION

Hypercholesterolemia is a condition in which the increased concentration of total cholesterol in the blood exceeds normal. Cholesterol can interfere with and change blood vessels' structure, resulting in impaired endothelial function causing lesions, plaques, occlusion, and embolism. Hypercholesterolemia is one of the causes of cardiovascular disease. Total cholesterol level is influenced by the intake of nutrients, namely the intake of fat (1). Plasma lipids, namely cholesterol, triglycerides, phospholipids, and fatty acids, come from food (exogenous) and fat synthesis (endogenous) (2). Cholesterol here includes total cholesterol, low-density lipoprotein (LDL-cholesterol), and high-density lipoprotein (HDL-cholesterol). These substances are essential for the body to maintain its normal function. If excessive, it will result in an increased risk of heart disease and stroke (3).

World Health Organization (WHO) estimates that the death rate due to cardiovascular and blood vessel disease incidence reaches 17 million deaths, namely 48% (4). The 2013 world health statistics results gained 308 cases in 100,000 people aged 30-70 (5). Basic Health Research in 2018 states, the prevalence of Coronary Heart Disease (CHD) in Indonesia is 1.5%. It was recorded in an integrated guidance post of non-communicable diseases with high cholesterol in Indonesia according to gender in 2016, in male gender by 48% male, in women by 54.3%, the highest prevalence based on age was at age <75 at 4.7%. According to education, the highest level is civil servants, 2.7%, and the lowest is school age of 0.6% (6). The health profile of Central Sulawesi province in 2016 shows statistical data for non-communicable diseases showing that cholesterol disease still occupies the largest proportion of all reported non-communicable diseases, which is 50.1%. The most dominant non-communicable disease data at age > 60 years was 58.7%(7). In the number of cases of hypercholesterolemia sufferers at Talise Public Health Center, there were 568 male genders, 695 female patients, a total of 1,263 patients with hypercholesterolemia.

Increased cholesterol levels are associated with an unbalanced diet. Intake that contains lots of fat and sugar is one of the causes of dyslipidemia (8). The increase in cholesterol level is influenced by carbohydrates, protein, fat, fiber, and cholesterol. Dietary management to reduce cholesterol levels is done by controlling the intake of nutrients in a balanced manner as needed (9). To prevent hypercholesterolemia, modify daily lifestyles such as adjusting a balanced diet by eating fruits or vegetables, regular exercise, weight control, and consumption of drugs that effectively lower cholesterol levels (10-11).

Nurses' roles include nursing care, avocado, educator, collaboration, consultant, and reformer, development, supportive, educative in providing information knowledge and skills training for disease prevention and improving health status and individual ability to conduct nursing interventions. One form of nursing care is through complementary actions to address patient problems. Types of nursing actions include wet cupping, acupuncture, acupressure, herbs, and aromatherapy (12).

When applying the cupping, there is a process on the capillaries and arterioles, increase the number of leukocytes, lymphocytes, the reticuloendothelial system, and ACTH releases cortisone, endorphins. Besides that, there is an inflammatory effect, a decrease in serum fat, phospholipids, and stimulates lipolysis process of fatty tissue and levels. Blood glucose order normal. Therefore, this therapy can reduce the lipid profile levels.

Aromatherapy is a treatment using fragrances derived from extracts of aromatic plants. With aromatherapy, ginger essential oil contains the main components, namely volatile and non-volatile. Both components can spread the distinctive odor. Ginger can increase the enzyme 7α -hydroxylase, which plays a role in the biosynthesis of bile acids and stimulates the conversion of cholesterol to bile acids, which causes the body's cholesterol accretion. Therefore, it is proven that its properties can cure several types of diseases and overcome changes in the lipid profile.

Akbar's research on the effect of wet cupping on cholesterol and blood pressure in

hypertensive patients with this study provided cupping twice, namely at the week I and week II. After the first cupping, with a sample of 40 people without a control group, the percentage change in systolic blood pressure after cupping on a week I was 5.21% and week II was 7.86%, while for total cholesterol levels, which were only measured in week II it resulted in changes by 0.28%.(13)

Helma's research on the effect of cupping therapy on fixed cholesterol by this study has been carried out on eleven patients who were treated with cupping (72.73% women and 27.27% men). There was a significant difference in total cholesterol levels before and after cupping therapy; the value of $p = 0.000$ was obtained. It was found that total cholesterol levels after cupping therapy were lower than total cholesterol levels before cupping therapy (14).

Another study conducted by Fikri to test cupping therapy to reduce cholesterol with cupping showed that the results of checking cholesterol levels before and after giving cupping therapy in the treatment group resulted in statistical tests using the independent t-test showed that the significance level was $p = 0.001$. There is an effect of cupping therapy in the treatment group on reducing cholesterol levels in patients with hypercholesterolemia aged 45 years and over. Meanwhile, the control group (not given cupping therapy) showed a value of $p = 0.347$ (15).

Hapsari et al. stated that the effect of giving red ginger (*Zingiber officinale var rubrum*) on the LDL cholesterol level of dyslipidemia women. True experimental research with pre-test – post-test control group was applied to 34 dyslipidemia women with LDL cholesterol levels of more than 100 mg/dl to 159 mg/dl. Subjects were given a red ginger drink at a dose of 3.2 ml/kg bodyweight for 21 days. In this study, the results using Mann-Whitney showed that the mean difference in the mean change in LDL levels was significant ($p < 0.05$) between the control and treatment groups (16).

Another study examined the effect of ginger aromatherapy essential oil applied per inhalation on levels of total cholesterol, triglycerides, High-Density Lipoprotein (HDL) cholesterol, and Low-Density Lipoprotein (LDL) cholesterol for five weeks reduce levels of triglycerides, total cholesterol, and LDL cholesterol and increase HDL cholesterol levels (17).

Previous studies do cupping therapy by measuring cholesterol levels in male respondents aged 45-60 years and a sample size of 20 respondents. Result in the treatment group, when the pre-test had a mean cholesterol level of 238.7 mg/dl with a standard deviation of 24.062. In the post-test, respondents' mean cholesterol level was 207.9 mg/dl with a standard deviation of 39.232. In the control group pre-test had a mean cholesterol level of 248.6 mg/dl with a standard deviation of 17.636. In the post-test, the respondents' mean cholesterol level was 264.7 mg/dl with a standard deviation of 14.457. Analysis using the independent statistical test showed $p = 0.001$, and with the paired t-test, the value of $p = 0.003$ was obtained. These results showed a significant effect of cupping therapy on reducing cholesterol levels in patients with hypercholesterolemia aged 45 years and over for 21 days. Researchers conducted this therapy using 3 points, namely the first Arabic name 1) al-akhdain (Fung chi), point GB 20, 2) Al-kahil (Dazui) DU 14, 3) Al-katifain (jiangjing) GB 21. Another study found that cupping therapy was carried out for five weeks in 1 cupping treatment for hypercholesterolemia sufferers, with a total sample of 14 respondents using three cupping points. Based on the statistical test paired T-test Total cholesterol, triglycerides and LDL obtained the p-value of total cholesterol $p = 0.612$, triglycerides $p = 0.242$, LDL = 0.396, HDL results obtained $p = 0.71$. With the results of total cholesterol Pre 242.6 mg/dl post 238.3 mg/dl, Pre Triglycerides 138.9 mg/dl post 174 mg/dl, pre HDL 46.07 mg/dl, post 70.7 mg/dl, and pre LDL 138.9 mg/dl, post 174.2 mg/dl. And researchers suggest being given 2x cupping treatments for four weeks and 30 days 3x cupping treatments.

The research above shows that cupping affects reducing levels of lipid profiles, but the difference is made to the researchers above using only 3 points. And did not do the combination with other independent, the study was conducted for 21 days in a pre-test – post-test. From these results, compared to the results of previous studies conducted, this researcher's achievements had

a better effect on changing the lipid profile. Researchers conducted the study for 21 days, with 2 cupping using 5 points with the results, for pre-control total cholesterol, 225.0 mg/dl, post 148.6 mg/dl, pre LDL 197.4 mg/dl, post LDL 138.6 mg/dl, pre HDL 75.5 mg/dl, post 42.4 mg/dl, pre triglycerides 232.3 mg/dl, post 150.9 mg/dl. In the intervention group pre total cholesterol, 228.8 mg/dl, post 164 mg/dl, pre LDL 166.8 mg/dl, post 129.9 mg/dl, pre HDL 75.5 mg/dl, post 47.7 mg/dl, pre triglycerides 148 mg/dl, post 139.0 mg/dl.

In previous studies, giving aromatherapy essential oil of ginger for five weeks with one treatment can reduce total cholesterol, triglycerides, and LDL cholesterol. It also increase blood HDL cholesterol levels of mice with results on pre total cholesterol 104.7 mg/dl, post 89.9 mg/dl, pre triglycerides 74.0 mg/dl, post triglycerides 43.6 mg/dl, pre LDL 61.6 mg/dl, post LDL 45.5 mg/dl, and pre HDL 31.2 mg/dl, post HDL 36,1 mg/dl. Researchers suggest that further research should be carried out using ginger essential oil in stratified doses to determine the effects of lipid levels.

In the above study, research on ginger's aromatherapy essential oil for five weeks with one treatment shows that it can affect the lipid profile. From these results, when compared with research conducted using aromatherapy essential oil of ginger for 21 days with two times given to humans, yields for pre-control total cholesterol 225.0 mg/dl, post 148.6 mg/dl, pre LDL 197.4 mg/dl, post LDL 138.6 mg/dl, pre HDL 75.5 mg/dl, post-HDL 42.4 mg/dl, pre triglycerides 232.3 mg/dl, post triglycerides 150.9 mg/dl. In the intervention group pre total cholesterol 228, 8 mg/dl, post 164 mg/dl, pre LDL 166.8 mg/dl, post LDL 129.9 mg/dl, pre HDL 75.5 mg/dl, post HDL 47.7 mg/dl, pre triglycerides 148 mg/dl, post triglycerides 139.0 mg/dl. The above research does not combine with other independent to provide the expected results. This study conducted a study by administering cupping therapy with ginger essential oil aromatherapy to reduce the lipid profile significantly.

OBJECTIVE

This study aimed to examine the effect of cupping therapy with ginger aromatherapy on reducing the lipid profile levels in hypercholesterolemia patients.

METHOD

This study used the true experimental study design, pre-test, and post-test with the non-equivalent control group. Researchers divided samples into two groups, such as the intervention group that received the cupping therapy with ginger aromatherapy, and the control group received only 10 gr of simvastatin drug per day. The research on cupping therapy with ginger aromatherapy was carried out for 21 days using kop cupping with a diameter of 5 cm for 30 minutes.

Examination of lipid profile levels with a multi-check instrument includes alcohol swab, lancet, and pro lipid. Examining the lipid profile levels of respondents who experienced hypercholesterolemia was carried out before (pre-test day 1) and after the therapy action (post-test day 21).

This study included all patients experiencing hypercholesterolemia who visited the Talise Public Health Center, Palu City, Central Sulawesi Province. The samples were selected by using simple random sampling and allocated followed the inclusion and exclusion criteria. The 30 respondents who were relevant to this study were involved.

In this study, researchers collected data by observing, identifying, interviewing, and filling out observation sheets. The collected data were analyzed through the IBM SPSS version 24.0 program. We analyzed the data using the Paired t-test and Independent t-test to determine the mean difference before and after receiving the intervention for the experimental and control groups.

RESULT

Characteristic of respondents

Table 1 showed the characteristic of respondents. The results showed that most of the respondents in the experimental group and the control group were 36 to 40 years old. Regarding the educational background, patients in the experimental group graduated from primary school (40%). Whereas in the control group, most of them graduate from high school (33.3%)

Table 1 Frequency distribution of respondents from age and education based on demographic data

Characteristics	Control (n=15)		Intervention (n=15)		P
	N	%	n	%	
Age					
36-40 Years	5	33.3	5	33.3	0.635
41-45 Years	1	6.7	3	20.0	
46-50 Years	4	26.7	4	26.7	
>50 Years	5	33.3	3	20.0	
Education					
Elementary school	3	20.0	6	40.0	0.251
Middle School	4	26.7	5	33.3	
High school	5	33.3	2	13.3	
College	3	20.0	2	13.3	
Total	15	100	15	100	

**Homogeneity Test*

Mean difference of lipid profile levels before and after treatment in the intervention group and control group

Table 2 showed the mean difference in lipid profile levels among the experimental group and the control group. There are differences in the mean reduction in lipid profile levels, including total cholesterol, LDL, HDL, and triglycerides before and after being given treatment in the intervention group and control group significantly with p-value <0.05.

Table 2. Mean difference of lipid profile levels before and after treatment in the intervention group and control group

Group	Variable	Pretest Mean ± SD	Post-test Mean ± SD	P-value
Intervention	Total cholesterol	228.87±13.038	164.93±21.555	0.000*
	LDL	166.80±5.267	129.93±14.665	0.000*
	HDL	75.53±8.551	47.07±6.660	0.000*
	Triglycerides	148.93±5.244	139.00±6.845	0.001*
Control	Total cholesterol	225.00±10.945	148.67±21.810	0.000*
	LDL	197.47±14.187	138.60±5.829	0.000*
	HDL	75.53±8.551	42.40±4.517	0.000*
	Triglycerides	232.33±8.942	150.93±9.655	0.000*

**Paired t-test*

Mean difference of lipid profile levels before and after treatment between intervention group and control group

Table 3 showed mean difference of lipid profile levels before and after treatment between intervention group and control group. The results found that there is the mean difference of lipid profile levels, including total cholesterol, LDL, HDL, and triglycerides before and after treatment both the intervention group and control group with a p-value <0.05.

Table 3. Mean difference of lipid profile levels before and after treatment between intervention group and control group

Variable	Control			Intervention		
	Mean	Mean Difference	P-Value	Mean	Mean Difference	P-Value
Cholesterol Pre	225.0			228.87		
Cholesterol Post	148.67	76.333	0.000	164.93	63.933	0.000
LDL Pre	197.47			166.80		
LDL Post	138.60	58.867	0.000	129.93	36.867	0.000
HDL Pre	75.53			75.53		
HDL Post	42.40	33.133	0.000	47.07	28.467	0.000
Triglycerides pre	232.33			148.93		
Triglycerides post	150.93	81.400	0.000	139.00	9.933	0.001

**Dependent t-test*

Table 4 Effect of cupping therapy with ginger aromatherapy between in the intervention group and control group

Variable	Group	Mean Difference	Difference IK 95% Lower-Upper	P-value
Total Cholesterol	Intervention	164.93		
	Control	148.67	3.005 – 29.529	0.018
LDL-Cholesterol	Intervention	129.93		
	Control	138.60	(-17.013) – (-320)	0.042
HDL-Cholesterol	Intervention	47.07		
	Control	42.40	411 – 8.923	0.033
Triglycerides	Intervention	150.93		
	Control	139.00	(-18.193) – (-5.674)	0.001

**Independent t-test*

The table above shows an effect of cupping therapy with ginger aromatherapy on reducing lipid profile levels, including total cholesterol, LDL, HDL, and triglycerides, between the intervention group and control group significantly with a p-value <0.05. In conclusion, the intervention group was more effective in reducing the lipid profile levels than the control group in terms of the higher difference.

DISCUSSION

The effectiveness of cupping therapy with ginger aromatherapy to total cholesterol levels

The results showed the average change in lipid profile before and after being given cupping therapy with ginger essential oil aromatherapy in the intervention group using different tests with total cholesterol from 228.87 to 164.93. The results of statistical tests with independent t-test in the intervention group $p=0.000$, in the control group with a value of $p=0.000$. There is a delta value in the intervention group for total cholesterol 63.45 and the control group 76.33. Both groups from the delta test got a value of $p=0.000$. Both groups in the control group and the intervention group had an average p-value of less than 0.05, which means significant changes in both groups.

From the calculation of the normal value (cut point), there is a value in the intervention and control group on total cholesterol, which is <200 mg/dl. The intervention group cupping therapy with aromatherapy reached a normal value of 15 respondents with results (100%). In the control group, 15 respondents (100%) were given 10 mg simvastatin to reach normal values. From the calculation of Relative Risk Reduction (RRR), there is a result of 0%, Absolute Risk Reduction (ARR) is 0%, and Number of Needed (NNT) is 0%.

The difference with previous studies compared to the effect size calculation. The effect size in the research conducted by Mustafa with cupping therapy on a lipid profile given two treatments in 2 weeks was 0.47, which means it has a moderate effect on cholesterol levels. While the calculation of the effect size based on Cohen was 0.81. It was indicated it has a strong influence on hypercholesterolemia. From these results, it is known that cupping therapy with the aromatherapy of ginger essential oil, seen from the result of the effect size calculation, has a strong effect on total cholesterol.

The effectiveness of cupping therapy with ginger aromatherapy to LDL levels

The results showed the average change in lipid profile before and after being given cupping therapy with aromatherapy essential oil of ginger with different tests in the intervention group for LDL-cholesterol 166.80 to 129.93. Statistical test results with independent t-test in the intervention group $p=0.000$. The delta results were found in the intervention group was 36.87, and the control group was 58.87. Both groups from the delta test received $p=0.000$.

From the results of the calculation of the normal value (cut point), there is a value in the treatment and control group on LDL-cholesterol, which is <130 mg/dl, in the treatment group cupping therapy with aromatherapy, reached a normal value of 15 respondents with results (100%). The group controls were given 10 mg of simvastatin, which reached normal values of 15 respondents (100%). From the calculation of Relative Risk Reduction (RRR), there is a result of 40%, Absolute Risk Reduction (ARR) is a result of 40%, and Number of Needed (NNT) is a result of 3%.

The difference with previous studies compared to the calculation of the effect size based on Cohens. The effect size of Mustafa's research results with cupping therapy on lipid profiles given two treatments in 2 weeks was 0.51 having a moderate effect on LDL-cholesterol. While the result of the calculation effect size on the combination of cupping therapy with aromatherapy essential oil of ginger is 0.77, it has a strong influence on the level of LDL-cholesterol. From these results, it can be seen that cupping therapy with aromatherapy essential oils has a strong effect size.

The effectiveness of cupping therapy with ginger aromatherapy to HDL levels

The results showed the average change in lipid profile before and after being given cupping therapy with aromatherapy essential oil of ginger in the intervention group for HDL-cholesterol 166.80 to 129.93. Statistical test results with independent t-test in the intervention group $p = 0.000$. The delta results were found in the intervention group with a result of 28.46, in the control group, with 33.13. Both groups from the delta test received $p=0.000$. The control group with a value of $p=0.000$, both the control group and the intervention group had an average p-value of less than 0.05, which means significant changes in both groups.

From the results of the calculation of the normal value (cut point), there is a value in the treatment and control group on HDL-cholesterol that is <40 mg/dl. The treatment group cupping therapy with aromatherapy reached a normal value as many as 15 respondents with results (100%). In the group, controls were given 10 mg simvastatin drug reaching normal values of 15 respondents (100%) from the results of the calculation of Relative Risk Reduction (RRR), the result is 8%, Absolute Risk Reduction (ARR) is 7%, and Number of Needed (NNT) is 14 %.

The difference with previous studies compared to the calculation of the effect size cohens. The effect size Cohens by Mustafa is 0.44, which has a moderate effect on HDL-cholesterol. Simultaneously, the result of the calculation effect size on the combination of cupping therapy with aromatherapy essential oil of ginger is 0.82, which means that it has a strong influence on HDL-cholesterol. From these results, it can be seen that cupping therapy with aromatherapy essential oils has a strong effect size.

The effectiveness of cupping therapy with ginger aromatherapy to triglycerides levels

The results showed the average change in lipid profiles before and after being given cupping therapy with aromatherapy essential oil of ginger in the intervention group for HDL-cholesterol 166.80 to 129.93. Statistical test results with independent t-test in the intervention group $p=0.000$. The delta results were found in the intervention group with a result of 9.93, in the control group, with 81.4. Both groups from the delta test received $p=0.000$. In the control group was a p-value of $p=0.000$. Both the control group and the intervention group had an average p-value of less than 0.05. It was significant changes in both groups.

From the results of the calculation of the normal value (cut point), there is a value in the treatment and control group of triglycerides, namely <150 mg/dl, in the treatment group cupping therapy with aromatherapy, reached a normal value of 15 respondents with results (100%). In the control group given 10 mg simvastatin drug reached a normal value of 15 respondents (100%) from the calculation of Relative Risk Reduction (RRR), there was a result of 85%, Absolute Risk Reduction (ARR) was 34%, and Number of Needed (NNT) was 3%.

The difference with previous studies compared to the calculation of the effect size cohens. The result of Mustafa's effect size Cohens is 0.33, which has a moderate effect on LDL-cholesterol. In contrast, the effect size calculation on the combination of cupping therapy with aromatherapy essential oil of ginger is 1.33, which means that it has a strong influence on LDL-cholesterol. From these results, it can be seen that cupping therapy with aromatherapy essential oil of ginger provided a strong effect size.

Cholesterol that enters through food intake is absorbed by the intestine and then carried to the extra hepatic tissue or fat tissue and undergoes hydrolysis. The hydrolysis results are carried to the liver by the LPL enzyme (Lipoprotein Lipase) through the capillaries. The lipids are then metabolized in the liver. Chylomicrons as lipid transport into the liver are synthesized into HDL and VLDL. VLDL is converted into IDL and then LDL to circulate cholesterol to tissue cells; excess LDL is brought back by HDL to the liver to be excreted into bile acids. The high intake of cholesterol triggers an increase in total cholesterol levels and an increase in LDL, resulting from

not being compensated by HDL, to be lowered back to the liver so that a hypercholesterolemia state can occur.

Cholesterol cannot circulate independently in blood vessels, so transportation is needed to reach the necessary parts of the body. Cholesterol can be bound to proteins in the form of lipoproteins. Cholesterol is carried through the bloodstream in two protein components: low-density lipoprotein, low-density lipoprotein (LDL), and high-density lipoprotein (HDL).

Cupping therapy with ginger essential oil aromatherapy proves that if one point is applied, the skin (cutis), subcutaneous tissue (sub cutis), fascia, and muscles will be damaged from the mast cell or others. As a result of this damage, several substances will be released, such as serotonin, histamine, bradykinin, slow-reacting substance (SRS), and other unknown substances. These substances that cause capillary dilation can also occur far from the clotting site. This will cause an increase in the microcirculation of blood vessels. Due to the relaxing effect (relaxation) of stiff muscles and due to general vasodilation, cholesterol is stably lowered. The most important event is the release of corticotrophin-releasing factor (CFR). It is releasing of factors other by adenohipofise. Corticotrophin factor will then cause the formation of adrenocorticotrophic hormone (ACTH), corticotrophin, and corticosteroid. *Corticosteroid* this has the effect of curing inflammation and stabilizing cell permeability. The resulting histamine group has benefits in the repair process, repair damaged cells and tissues, and stimulates the formation of the reticuloendothelial cell, which will leave resistance and immunity (immune).

The mechanism of ginger essential oil aromatherapy to reduce cholesterol levels occurs because ginger critical oil components affect the synthesis of cholesterol bile acids in the liver. Previous researchers said their research that several compounds isolated from ajhe such as (E)-8 beta, 17-epoxy label-12-ene-15, 16-dial affect cholesterol biosynthesis in the liver. Bile acids are made from cholesterol; stimulation for the excretion of bile acids means that more cholesterol is used to make bile acids so that the total decreases.

In addition, cupping treatment has proven to be beneficial because the person doing the therapy with cupping is stimulated at nerve points in the body, just like with acupuncture treatment. Acupuncture produced is only stimulation while cupping, in addition to stimulation, also occurs blood flow movement.

If it is done, it can remove toxic substances, including cholesterol, that are not excreted by the body through the skin surface by injuring the skin and suction. Cupping therapy also has a relaxing and vasodilation effect on the blood vessels to improve blood circulation. Cholesterol reduction can slow down plaque formation (fatty plaque) and reduce the size of existing plaque. Interventions by providing cupping therapy can help prevent heart attacks, strokes and reduce the risk of death.

Previous research researched the effect of cupping therapy on cholesterol levels in hypercholesterolemia patients, with high cholesterol 292 mg/dl and the lowest 215 mg/dl. The results showed that after being given cupping therapy, there was a decrease in cholesterol levels by 82 mg/dl, and the lowest was 10 mg/dl. It was consistent with the previous study that reported that cholesterol decreased after receiving cupping therapy with aromatherapy essential oil ginger.

In previous studies by Syed stated that wet cupping therapy with results ($p < 0.05$) was significant on the lipid profile. Research conducted by Noor Akbar provides benefits for hypercholesterolemia patients, such as reducing the amount of cholesterol that can increase. Food intake containing too much-saturated fat comes from animal fat, eggs, and what is often called fast food (junk food), lack of exercise, and smoking habits (18).

Research conducted by ZahidFikri, which was conducted for 21 days, showed a positive effect on cholesterol levels with a significant value of $p = 0.001$ in the intervention treatment. Many factors affect a person's lipid profile; non-pharmacological management is part of the management of hypercholesterolemia (19).

CONCLUSION

In conclusion, cupping therapy with ginger aromatherapy is an alternative to complementary therapy. It can be concluded that the mean reduction in lipid profile levels includes: total cholesterol, LDL, HDL, and triglycerides in the intervention group more than the mean reduction. Lipid profile levels in the control group with p-value <0.05. In conclusion, the intervention group was more effective in reducing lipid profile levels than the control group.

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