EFFECTIVENESS OF SEMBUNG TREE HONEY ON DECREASING CHOLESTEROL LEVEL IN HYPERCOLESTEROLEMIA

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ABSTRACT

Background: Lifestyle changes, causing an increase in cholesterol. Honey has done a lot of research. The content of flavonoids can lower cholesterol. Many people consume Sembung tree honey, but not much research has been done, including its effectiveness in reducing cholesterol. This study aimed to analyze the effectiveness of sembung tree honey to reduce cholesterol levels in hypercholesterolemia.

Subjects and Method: This was a quasi-experiment with pretest and posttest control group. A sample of 20 hypercholesterolemia sufferers in Kedensari Village was selected by purposive sampling. The dependent variable was hypercholesterolemia. The independent variable was sembung tree honey. The data was analyzed by Wilcoxon.

Results: Cholesterol level after intervention (<240 mg/dL), lower before intervention (> 240 mg / dl), significant value p = 0.000. The mean coverage of cholesterol levels after the intervention (Mean = 185.50; SD = 6.05) was lower than that before the intervention (Mean = 247.20; SD = 6.96), it was statistically significant (p <0.001).

Conclusion: Sembung tree honey is effective in reducing cholesterol levels.

Keywords: Sembung tree honey, hypercholesterolemia

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BACKGROUND

Cholesterol is a disease that many people already know. Excess cholesterol in our body can lead to heart disease and stroke. Cholesterol levels can be said to be hypercholesterolemia if cholesterol levels reach> 240 mg / dl. The cause of many cholesterol types, which is often a food factor, especially with a high oil content. Today's people's diet often consuming unhealthy foods, for example, ready-to-eat food. So that the incidence of hypercholesterolemia in the community is increasing.

Based on Riskesdas 2007 data, the prevalence of hypercholesterolemia was 39.8%. Mayes (2013), American Heart Association (AHA) noted that more than 100 million Americans have total cholesterol levels> 200 mg/dl, 34 million adults have total cholesterol levels in the blood> 240 mg/dl. Riskesdas (2018) in developing countries such as Indonesia, causes changes in lifestyle and changes in food consumption, so that a lot of the consumption they eat causes degenerative diseases that can increase cholesterol levels. Riskesdas (2018). Data from cadre records from early March 2019 data collection in Kedensari RW 05 found that out of 20 people who had a cholesterol check, there were almost 50% high cholesterol levels.

Hembing (2008) genetic factors that affect a person's cholesterol levels include food, smoking, alcohol, body weight, coffee, stress, exercise, age, gender, and contraceptive pills. Increased levels of cholesterol in the blood if allowed to risk leading to heart and even stroke. Hypercholesterolemia treatment

can use non-pharmacological such as diet therapy, exercise, and the use of herbal products. Many herbal products and herbal plants are proven to reduce cholesterol levels, one of which is Sembung honey. Research conducted by Rizky et al. (2015) regarding the effect of giving Randu honey on plasma HDL and LDL cholesterol levels in active smokers, it was found that the plasma HDL levels of active smokers after giving honey increased by 0.625, LDL levels fell by 1.5.

Not many people have researched Sembung honey, but the public has widely consumed the use of Sembung honey. Sembung leaves themselves have rich benefits, including rich in antioxidants, anti-inflammatory, lowering cholesterol levels, reducing the risk of heart disease and stroke, optimizing blood distribution and maintaining healthy blood vessels.

Based on the existing problems and background, this study tries to prove the benefits of sembung tree honey in reducing blood cholesterol levels.

SUBJECTS AND METHOD

1. Study Design
The design of this study was a true experiment, with a pretest post-test control group design.

2. Population and Sample
A sample of 20 hypercholesterolemia sufferers in Kedensari Village was selected by purposive sampling.

3. Study Variables
The dependent variable was hypercholesterolemia. The independent variable was sembung tree honey.

4. Data Analysis
The data was analyzed by Wilcoxon.

RESULTS

This study's results describe the analysis normality results on the pre and post respondents who gave Sembung tree honey. Table 1 shows that the results of the normality test of the pre-test and post-test blood cholesterol variables on respondents using Shapiro Wilk test obtained a p value> 0.05 which means normal data distribution, then to be able to use t-test, homogeneity analysis of variance between groups was carried out with levene test.

Table 1.Normality test of respondents' cholesterol levels before and after being given sembung tree honey in Kedensari Village RW 05 Tanggulangin Sidoarjo in 2020

Respondents	Cholesterol levels	p
Honey group	Pre-test cholesterol level	0.720
	Post-test cholesterol level	0.544

Table 2. Shows the variance hommogeneity test results, obtained P <0.05, which means that the variable homogeneity is not met.

Furthermore, because the value of homogeneity is not met, the variable test Whitney-Mann and wilxocon

Table 2. Distribution of respondents with homogeneity test before and after given the Honey Tree sembung in RW 05 Kedensari village was 2020

Levene Statistic	DF1	DF2	Sig.
24,975	1	38	<0.001

Table 3. The resulting asymp values. Sig. (2 tailed) has a value of 0.000 <0.005, meaning that the hypothesis is accepted, that is, there is a difference between cholesterol levels before (pre-test) and after (post-test) being given Sembung tree honey.

Table 3. Distribution of respondents with Test *wilxocon* before and after administration of Honey Tree sembung Village RW 05 Kedensari waas 2020

Test Statistics	Post-test and pre-test
Z	-6046[b]
Asymp. Sig. (2-tailed)	.000

Based on table 4, it is found that p (0.000) <α (0.005) means that there is an effect of giving Sembung tree honey on reducing cholesterol levels in hypercholesterolemia.

Giving sembung tree honey based on the results of statistical tests can be effective in lowering cholesterol levels. According to the opinion of Bagdanov (2012) in his research, proving that there was a decrease in cholesterol levels in hypercholesterolemia after being given honey at a dose of 75gr. According to Asih (2012), it was found that honey contains flavonoid compounds, namely the isoflavone group. Flavonoids in honey work to lower cholesterol levels by inhibiting 3-hydrxy-3-methyl-glutary (HMG) - CoA reductase, inhibiting triacylglycerols' secretion and increasing HDL (Sekhon and Loodu, 2012).

Table 4. Distribution of respondents with test *Mann Whitney* before and after giving honey Sembung tree in the village Kedensari RW 05 2019

Test Statistics	Honey content
Mann-Whitney U	9.500
test,Wilcoxon W	219.500
Z	-5184
Asymp Sig. (2-tailed)	.000
Exact Sig. [2 * (1-tailed Sig.)]	.000[b]

a. Grouping Variable: treatment
b. Not corrected for ties.

DISCUSSION

Honey is rich in carbohydrates, water, vitamins, and minerals. Honey also contains enzymes and antioxidants that are good for the body. The content of flavonoids in honey can eliminate free radicals, this is following the opinion of Rahma Siti (2014) that phenolic compounds in honey act as antioxidants that can reduce blood LDL levels in hypercholesterolemia. Honey on sembung tree has not been done much research. In fact, in the field, many people have consumed Sembung honey. Sembung honey in this study was obtained from wild forests in the Banyuwangi area. Specifically from the content of sembung itself, many studies have been carried out, including being able to reduce cholesterol levels.

Huang et al. (2006) found that the flavonoid components of sembung were found, especially leaves (2.94%), stems (1.36%), and branches (1.21%). The flavonoids in Sembung include again, blumeatin, and ombuine. In research, giving sembung honey can reduce cholesterol levels in hypercholesterolemia, sembung tree honey is effective in hypercholesterolemia, and honey contains flavonoids that function to reduce cholesterol levels by inhibiting 3-hydrxy-3-methyl-glutary (HMG) -CoA reductase, inhibiting secretion of triacylglycerol and increase HDL.

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