International Journal Of Health Medicine and Current Research
E - ISSN : 2528 - 3189
P - ISSN : 2528 - 4398

International Journal of Health Medicine and Current Research
Vol. 4, Issue 03, pp.1436-1446, September, 2019

DOI:
10.22301/IJHMCR.2528-3189.1436

Article can be accessed online on:
http://www.ijhmcr.com

ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF HEALTH MEDICINE AND CURRENT RESEARCH

THE INFLUENCE OF CAPSULE CONSUMPTION LAOR (POLYCHAETA) DECLINE AGAINST CHOLESTEROL LEVELS IN PATIENTS WITH HYPERCHOLESTEROLEMIA IN THE VILLAGE OF PITU, DISTRICT CENTRAL TOBELO, NORTH HALMAHERA

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ARTICLE INFO

Article History:
Received 24th Jun, 2019
Received in revised form
25th Jul, 2019
Accepted 26th Aug, 2019
Published online 31th Sep, 2019

Key words:
Cholesterol, Capsule Laor worms (Polychaeta), Omega 9, Omega 6, Omega 3, Omega, Omega 7 and Vitamin E.

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ABSTRACT

Hypercholesterolemia is a disorder of blood lipid levels over 240 mg/dl. Cholesterol is a fat that is largely formed by the body itself, especially in the liver called endogenous, and approximately 30% is obtained from food called exogenous cholesterol. Laor worms (Polychaeta) consumed by the people actually posterior Polychaeta organisms that contain egg and sperm. This study aims to determine the effect of consumption of capsules Laor (Polychaeta) Total Cholesterol Levels To Decline In Hypercholesterolemia Patients In Rural Pitu, District Central Tobelo, North Halmahera Regency Year 2019. This type of research is the study "quasi Experiment Design With Pre-Post Test Control Group ". with a large sample of 10 respondents in the village of Pitu, Sampling by non-probability sampling types consecutive sampling. Statistic test using T-test with significance value α = 0.028> 0.05. And the value of T table 2,776 <3,364, the null hypothesis is rejected and the alternative hypothesis is acceptable means no influence consumption laor Capsules (Polychaeta) to the decrease in total cholesterol levels in patients with hypercholesterolemia. By consuming laor can lower cholesterol levels. This can be seen from the average cholesterol levels before and after consuming laor decline, before 323 mg/dL

Citation: Trisinta Hadi[1*], Sarah Mapanawang[1,2], Frangky Mapanawang[1,2], Sifra Wahani[1,2], Rasmin Hi. Abd. Mutalib[1,2], 2019 "*The Influence Of Capsule Consumption Laor (Polychaeta) Decline Against Cholesterol Levels In Patients With Hypercholesterolemia In The Village Of Pitu, District Central Tobelo, North Halmahera*", *International Journal Of Health Medicine And Current Research*, 4, (03), 1436-1446.

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INTRODUCTION

Cholesterol is one of this part of the fat, although cholesterol into the class of fats or lipids, but both are different substances, one type of food can be high-fat content but are free of cholesterol. [1]

Marine worms such as traditional foods that have high nutritional content. Marine worms (Polychaeta) are found on the sea surface in the mating season, which is good once a year in March or April and breed externally. [2]

According to data from the World Health Organization in 2015 hypercholesterolemia has caused the number of deaths reached 4.4 million people (7.9% of total deaths). [3]

Based on the report by the World Health Organization in 2015 of 2.6 million deaths in the world's population, 4.5% of the total deaths caused by cardiovascular diseases, particularly heart disease (7.3 million) and stoke (6.2%). One of the major risk factors for cardiovascular disease is high cholesterol. [4]

Based on reports Rikesdas Biomedical Division in 2016, demonstrating that prevalence in population in Indonesia who have the disorder was 35.9% when viewed from the levels of total cholesterol> 200 mg/dL (15.9%) and had the highest cholesterol level (11.9%) and have lower cholesterol levels <40 mg/dL (22.9%). [6]

As many as 37% mortality in Indonesia as a result of risk factors hypercholesterolemia, where as much as 35.9% of the population aged 15 years and over have total cholesterol values above the normal value Several provinces in Indonesia such as Nanggroe Aceh, West Sumatra, Bangka Belitung, and Riau Islands prevalence ≥50% increase in cholesterol levels [7].

Data from the Health Department in North Maluku province in 2016, reports the number of cases of non-communicable diseases in patients registered in hospitals or health facilities other in every town/districts in North Maluku province, shows the case with the highest number is hypertensive (9306 people), followed by DM (1,634 people), PFS (97), and stroke (75). [8]

Based on data from Public Health Center Pitu, District Central Tobelo, North Halmahera district from January to May 2019 was a total of 52 patients (Monthly Report Public Health Center Pitu, 2019)

Formulation of the problem

Based on the background described above, may be interested in examining whether the study "Effects of Capsule Laor (Polychaeta) to decrease cholesterol levels In patients with hypercholesterolemia"?

Interest Research

General-purpose

Knowing there any "Effect of Capsule Laor (Polychaeta) to decrease cholesterol levels in patients with hypercholesterolemia?

Special purpose

1. To Mengedentifikasi cholesterol levels before and after administration of capsules Influence Laor (Polychaeta) in patients with hypercholesterolemia Sufferers intervention.
2. Knowing the average for "The Effects of Capsule Laor (Polychaeta) to decrease cholesterol levels in patients with hypercholesterolemia patient control group.
3. Knowing the difference to cholesterol levels in the intervention group and the control group.

Benefits Research

For the people

The above results are expected to add insight to the community, especially people with cholesterol "Influence Capsules Laor (Polychaeta) to decrease cholesterol levels in patients with hypercholesterolemia.

For Institute

1. Adding reference Research Makariwo School of Halmahera
2. Such information can be used as a comparison to perform advanced Research for students and lecturers

For Nursing Care

This research can help provide information about the factors associated with cholesterol so that it can be the basis in efforts to prevent cholesterol.

For Further Research

As the material / Source or (reference) for other researchers who Having similar interests to develop further and can be used as a comparison for the interested to continue research including cholesterol disease and other diseases.

Literature review

Cholesterol

Definition

Cholesterol is an amphipathic lipid forming an essential structural component contained in the external layer of the cell membrane and the plasma lipoproteins, yellowish in color and form of wax produced by the liver and is required by the body. [6]

Cholesterol is a fatty substance that circulates in production by the liver and is needed by the body. Excessive cholesterol in the blood will cause problems, especially in the heart and brain blood vessels. Blood cholesterol, 80% of blood cholesterol is produced by the body itself and only 20% comes from food. Cholesterol is produced consists of 2 types of cholesterol HDL (High-Density Lipoprotein) cholesterol and LDL (Low-Density Lipoprotein). amount excessive LDL cholesterol in the blood and form Clot that can clog blood vessels. Meanwhile, HDL cholesterol, Has the cleaning function of blood vessels from excessive LDL cholesterol. [9]

Hypercholesterolemia is a condition in which cholesterol levels in the blood already exceeds the normal limit of 200 mg/dL (Cicilia 2017). Conditions hypercholesterolemia continuous and uncontrolled will lead to several kinds of diseases. Riskesdas 2017 by as much as 69.6% of the Indonesian population in conditions of hypercholesterolemia and 39.6% will come from the female sex. Most patients with hypercholesterolemia are found in urban areas. [10]

Types of Cholesterol

In the body, blood plasma Ditransportasikanmelalui cholesterol by binding to proteins. This bond is called * with lipoprotein. There are two kinds lipoprotein be as follows: [11]

Types of Cholesterol By: [11]

1. Total cholesterol

   Total cholesterol levels were good blood is <200 mg/dL, if> mg/dL mean increased risk of developing CHD.
2. HDL Cholesterol

   Cholesterol HDL (High-Density Lipoprotein) which is known as good cholesterol. Cholesterol HDL is called good cholesterol because it serves to transport excess cholesterol from the blood to be taken to heart and issued together with bile salts. on HDL so that he would be floating in the blood.
3. LDL Cholesterol

   LDL (Low-Density Lipoprotein) or bad cholesterol. LDL cholesterol is called bad cholesterol because it can lead to accumulation of fat in the blood vessels (Lili. 2009). LDL is a lipoprotein that transports cholesterol from the liver to be taken to the cells of the body that requires,

including to the heart muscle cells, brain and others in order to function properly. LDL cholesterol contains more fat cholesterol tapping main factors for coronary heart.

4. triglycerides

Triglycerides are a type of fat found in the blood and various organs in the body. From the point of chemistry of triglycerides is a substance consisting of a binding griselor fatty acid groups.

Category cholesterol

Cholesterol is measured in milligrams per deciliter of blood is commonly abbreviated as mg/dL or minimol per liter of blood, which is abbreviated mmol / l. Blood cholesterol level is carved in units of mg/dL then Its categorist seb follows Table 2.1 Category Total cholesterol levels in the blood of Adult Treatment Panel (ATP III).

cholesterol levels (mg/dL)	Category
<200	Optimal
200-239	Threshold
> 240	High

Source: NCEP. Detection, Evaluation, And Treatment Of High Blood Cholesterol In Adults (Adult Treatnebt Panel III) National Istituti Of Heart, Lung, And Bloodnsituti 2011.

If the blood cholesterol levels over 200 mg/dL, it will be at risk of heart disease. if the total cholesterol levels in the blood exceeds normal limits, excessive cholesterol levels in the blood will be easily attached to the inner walls of blood vessels. Excess LDL through the oxidation process will form clumps which clumps will form a growing bump that will cause constriction of the blood vessels. This process is usually referred to as atherosclerosis. [12]

The biosynthesis of cholesterol

About half of the body's cholesterol is derived from the synthesis process (approximately 700 mg/day) and the sides obtained from food.

Danger cholesterol

According to research, the process of atherosclerosis has occurred since the children. The process of atherosclerosis causes the hardening of blood vessel walls to become inelastic, far inhibit diameter blood vessels so that blood flow and lead to blockage of the blood vessels caused by the release of atherosclerotic plaque in the walls of blood vessels. Blood plaque on the walls of blood vessels, but not all firmly attached plaque. As plaque is fragile and easily separated from the walls of blood vessels which can occur when SJA and lead to a sudden attack, such as heart disease and stroke. Here are a variety of acute and chronic effects of high cholesterol levels. [15]

a. Atherosclerosis in blood vessels

Atherosclerosis in the blood vessels of the brain causing the disease to cause cerebrovascular disease or cerebrovascular diseases such as stroke. Stroke is a brain attack due to abnormalities of brain vessels blood be acute (sudden). Stoke attack based on the cause happened to be of two types, namely bleeding strokes and stoke infarction. Stroke infarction is closely linked to blood cholesterol levels high and both types of stroke are associated with hypertension.

b. Atherosclerosis in coronary artery

Atherosclerosis of the coronary arteries leads to cardiovascular disease or cardiovascular disease, coronary heart disease E.g. Blockage blood flow in coronary artery vessels causing insufficient blood and oxygen to the heart. In this state of heart, patients complained of chest pain symptoms are often called angina pectoris.

c. Atherosclerosis in leg blood vessels vessels

Artery atherosclerosis in blood vessels causing limb peripheral arterial disease. This condition is most common in the leg veins. A blockage in the blood vessels causing leg pain, cramps, even cause complications of gangrene in the foot. Patients who have peripheral artery disease at risk of getting a heart attack.

Factors associated with total cholesterol levels

Many factors are related to the total blood cholesterol levels. According to (Marcelia 2017) factors affecting the high levels of total cholesterol divided into risk factors that can be changed and the risk factors that can be changed is the body mass index (BMI), physical activity, and nutrient intake, while the risk factors that can not be changed is the gender, age, and genetics. More detailed food intake associated with cholesterol levels are carbohydrates, fat, fiber, and vitamin C.

1) Age

At the age of growing up and old, people will be more prone to attack high cholesterol. In adults and older age usually, people tend not active move as teenagers and children. In general, with add aged adults, according to the activity grows looked fat mass reduction, increased fat While the network.

2) Gender

Female sex hormones estrogen known can lower blood cholesterol and the male sex hormone androgen Obtained is increase blood cholesterol levels.

3) genetic

There is a genetic variation that affects the way the body to produce lipid. Some people have offspring hypercholesterolemia (familial Hypercholesterolemia). This genetic condition that causes high cholesterol levels Hereditary in family members. Although high cholesterol is not causing any symptoms, but familial Hypercholesterolemia may show signs such as cholesterol dispositif finish line in the form of white on the skin around the eyes. Besides this condition is detected by the tests of controls or genetic tests.

4) Body mass index (BMI)

Body mass index is a simple measure to determine the health status of adults, especially with regard to shortage and excess weight.

5) physical activity

Physical Activity is any form of muscle activity that results in the contraction of skeletal muscles. Physical activity produces energy expenditure that is proportional to the working muscles and is associated with health benefits.

a. Intake of Nutrient Substance

b. Carbohydrates

Increased intake of carbohydrates will increase the intake of cholesterol, demonstrating that the intake of carbohydrates associated with the incidence of hypercholesterolemia. High intake of carbohydrates risk of 5.43 times compared to the normal intake.

6) Fat

Deficits improve fat intake also increases the total cholesterol intake, because fat food which is mostly in the form of triglycerides undergoes hydrolysis to diglycerides, monoglycerides, and free fatty acids.

7) Cholesterol

Cholesterol is only found food of animal origin, the main source of cholesterol in the liver, kidneys, and egg yolks. The recommended consumption of cholesterol is <300 mg per day.

8) protein

Excessive consumption of proteins does not benefit the body. Foods that are high in protein are usually high in fat so it can cause obesity.

9) Fiber

A high-fiber diet helps to lower cholesterol. Vegetarian which Consume diet high in fiber, have a risk of heart disease is low.

10) Vitamin C

Vitamin C is an essential component in the breakdown of cholesterol in the body. Cholesterol difficult to remove when these vitamins are in Little Amount in the diet, which can lead to increased blood cholesterol levels. Vitamin C derived from vegetables and fruits can also increase HDL cholesterol and lowers cholesterol.

Worms concept Laor (Polychaeta)

Definition Laor worms (Polychaeta)

Laor (Polychaeta) is one of the biota typical of Maluku waters. In March or April, on the full moon for a matter of nights or a few days later, the biota is being clustered, an event when sea worms of certain types of clustered are irrigation around the waters for external Tinine is dicine when Married.

The benefits of such Polychaeta on aquatic ecosystems. Polychaetayang sizeable role, both in terms of ecology, food ingredients, as well as bio-indicators of pollution of the marine environment encourages the writer to find out more about the kinds of Polychaeta. Knowledge of Polychaeta is not limited to the type and variety alone on a body of water. But environmental factors that support the existence of Polychaeta also noteworthy. The amount of organic material and the substrate texture give effect to the presence of Polychaeta on waters.

Types Laor worms (Polychaeta)

a. Eunice Viridis (Palolo worm) as a food ingredient (Containing High Protein)
b. Lysidice Oela (flukes Wawo) as a food ingredient (Containing High Protein)
c. Neries Domerlili, Nereis Virens, Neanthes Virens (Sea Water Worm)
d. Arenicola sp.

Classification Laor worms (Polychaeta)

Table 2. Classification Polychaeta

Kingdom	Animalia
phylum	annelid
Class	Polychaeta
The Order	Eunicida
Familia	eunicidae
genus	Euenice
Species	Eunice Viridis

Nutritional content Laor worms (Polychaeta)

Polychaeta in protein and amino acids that quality as well as unsaturated fatty acids. Polychaeta protein content was 56.29% and 11.32% fat, while the fatty acid content include iokosapentanoat acid (EPA), dokosaheksanoat acid (DHA), arakhodonat acid (ARA), stearic acid (SA), linoleic acid (LA) and linoleic acid (LNA).

Based on research professor of marine worms UNRAM protein content is 43.84%, 11.57% fat content, carbohydrate content of 0.543%, 1.17% phosphorus, 1.06% calcium, 0.32% magnesium, sodium 1.69%, 1.24% potassium, chloride 1.05% and the iron content of 857 ppm. Besides these marine worms function as antibiotics.

The content of Compound Laor (Polychaeta)

According to the results of laboratory tests (19), states that in laor there are several compounds that are beneficial to the human body include:

Table 2. Compounds Laor

No	Fatty Acid	%	Mg / ml
1	lauric Acid	2,042	.435
2	Myristic Acid	3.388	0.722
3	Myristoleic Acid	.130	0,028
4	Palmitic Acid	25.645	5.468
5	Paimitoleic Acid	2,148	.458
6	stearic acid	14.017	2,989
7	oleic Acid	11.655	2,485
8	linoleic Acid	2,557	.545
9	Y-Linolenic Acid	0,400	0,085
10	linolenic Acid	2.356	0.502
11	11.14 cis-Elcosadienoic	4.056	0.865
12	Cis-Elcosatrienoic -8,11,14	9.956	2,123
13	behenic acid	.654	.140
14	Erucic Acid	12.891	2,749
15	Nervonic Acid	1,299	0.277
16	FIG	0.481	0.102
17	EPA	3.866	0.824
18	DHA	2.458	0.524
19	medium-chain	5.560	1.185
20	Saturates	40.316	8.596
21	Monoenes	18.968	4.044
22	n-6	29.861	6.367
23	n-3	5.294	1,129
24	Mg	2,132	
25	mg / ml	21.321	
	100 uL aliquots ug IS-100 (1 mg / mL)		

Compounds Oleic Acid (Omega 9)

Oleic acid (oleic acid) is a monounsaturated fatty acid found naturally in many plant sources and in animal products. It is a fatty acid omega 9 and considered one of the sources of healthy fats in the diet is commonly used as a substitute for animal fat sources high in saturated fat. Oleic acid is one that is better to consume instead of other saturated fats. Besides being used in food oleic acid is used to make soap and cosmetics.

IUPAC name: Oleic Acid

Other name: Acid oleic

Chemical formula: C18H2402

Polychaeta Oleic Acid Compounds associated with cholesterol are as follows:

Compounds of oleic acid (Omega 9) is an acid-containing fat and vegetable oils, such as olive oil, avocado, walnuts, peanuts, sesame oil, hazelnut pecan, nuts, walnut green, tree/fruit of the cashew, fruit hazelnuts, macadamia nuts, and others in larger amounts than acid-containing fat. which can lower the risk of heart attacks and atherosclerosis, and help prevent cancer.

Omega 6

Omega 6 fatty acids polyunsaturated have the first double bond at the 6th position. Physical properties

and chemical properties, metabolism, digestion, and absorption and secretion of fat equals. Omega 6 is one of the essential fatty acids. Essential fatty acids are actually composed of linoleic acid (AL) "linoleic acid" (LA), linolenic acid (ALN) "linolenic acid" (ALA). Which include unsaturated fatty acids are: Omega 3, EPA, DHA, omega 6, omega 9 essential fatty acids are particularly important for growth and brain development and eyesight. Food sources of fatty acids Omega 6 others also found in avocados, cereals, wheat, vegetable oil, linseed oil, soybean oil, cottonseed oil, sunflower oil, corn oil, pumpkin seeds, sunflower seeds, walnut, cashew nuts, soybeans, other beans. Advantages of consuming omega 6 together with monounsaturated fats (omega-9) that help fight heart disease and depression.

Omega 3

Omega-3 fatty acids are highly unsaturated and are liquid at room temperature. These fatty acids are very easily oxidized because of the number of double bonds that much that omega-3 fatty acids are not stable. The fatty acids including omega-3 fatty acid series is eicosapentaenoic (EPA) and docosahexaenoic (DHA).

EPA (eicosapentaenoic acid) is the main constituent component of fish oil that comes from the sea in the human body. EPA is a metabolite of ALA (Alpha-Linolenic Acid) generated through the process of enzymatic reaction of desaturation. EPA has many benefits Including is lowering the risk of coronary heart disease, anti-platelet aggregation, anti-inflammatory, reduce blood cholesterol, especially LDL.

DHA (docosahexaenoic acid) are classified into omega-3 fatty acids for contributing to the development of the brain and nervous system tissue.

Omega 7

Non-essential fatty acids known as omega-7. is a healthy form of trans-fats, omega-7 fatty acids not found in food non-fat, omega-7 in dairy products have lower cholesterol levels scientists at the University of Albert has found that rats who ate sour vaccenic for twelve weeks indulge in cholesterol total, LDL cholesterol, and triglycerides. vetaria best source of omega-7 fatty acid is bukthorn sea, macamia beans are also rich in omega -7, too much omega-7 in the diet cause unpleasant side effects, the benefits of omega-7 without a new risk by taking supplements of omega-7.

METHODS

This research design quasi Experiment Design Control Group with plans per test and post-test group, namely there are two groups each selected randomly or randomly. The first group was given Conduct and the experimental group and the group that was not given Conduct called control group.

Once it is done in front of one measurement (pretest) for the two groups, and then do the treatment on first group (experimental group) and the group who were not given the behavior (control group)

Research design is described as follows:

pretest-posttest

O1	x	O_3
O2		O_4

Information :

O1 = Result before measurement of cholesterol levels, consume extract laor in the intervention group (experimental)

O2 = The results of measurements of cholesterol levels in the control group

X = Intervention extract laor

O3 = The measurement results after consume extract cholesterol levels in the intervention group experiment laor

O4 = The measurement results in cholesterol levels in the control group

Place and Time Research

Points Research

Points of this research will be carried out in the Work Area Public Health Center Pitu, District Central Tobelo, North Halmahera.

time Research

Time Research made for 1 (one) month, commencing from June to July 2019.

Population and Sample

Population

Population is the amount consisting of objects or subjects that have certain characteristics and quality set by Research to be investigated and then drawn conclusions.

The population in this research were patients undergoing cholesterol-lowering hypercholesterolemia patients Work Areas Public Health Center Pitu, District Central Tobelo, North Halmahera. With amount 10 people.

samples

Sample is part of a number of characteristics that have the population used to Research. Big obtained from a population-based sample of patients undergoing interventional procedures in the village consume Laor extract Pitu, Work Area Public Health Center Pitu, District Central Tobelo, North Halmahera. In this Research sampling technique used is to use non-probability sampling method using saturation sampling the sampling technique is to take all the members of the

population being sampled. How this is done when amount population is small, such as when the sample is less than 30 samples then members of the population to be a sample taken entirely Research. Another term jenu sample is census, where all members of the population used as a sample.

Amount samples are 10 samples with part of the sample, 5 samples intervention group and 5 groups of samples for the control group. Insklusi criteria are general requirements that must be met by the subject to be followed include in Research. Characteristics of the sample are included in the criteria for inclusion in this research include:

a) Inclusion criteria

Inclusion criteria are criteria or standards set before Research does. Inclusion criteria used to determine whether a person can participate in the study can be entered Research individual systems study.

The criteria in this research are:

1) Hypercholesterolemia patients aged 20-65 years
2) Hypercholesterolemia patients with cholesterol is> 200 mg/dL
3) Patients with hypercholesterolemia who are not anti-cholesterol drug consume
4) Patients with hypercholesterolemia who want consume Capsules Laor
5) Patients with hypercholesterolemia who are willing sheet signed an agreement (Informed Consent)
6) Patients with hypercholesterolemia were in the village Pitu,

b) Exclusion criteria

A criterion where the subject may not be a representative sample Research because ineligible Research sample.

Exclusion criteria in this research are:

1) Hiperkolesteromia patients who are in work areas are Public Health Center Pitu, District Central Tobelo, but Not Included Pitu Village Community.

Method of collecting data

Data collection technique

1. Primary data

a. Interview (Interview)

Interview or Interview is a way to collect data for a question and answer with the respondent. With interviews expected to get information about cholesterol that can complement this research.

b. Observation (observation)

Observation is a direct observation of an object to be studied. In preparing this report the data obtained will be used as a comparison of what has been delivered by the respondent and developt.

c. Secondary Data

Secondary data were obtained from the literature, the study of literature, journals Research related and supporting Research, as well as data obtained from the working area Public Health Center Pitu, District Central Toelo District North Halmahera.

Data Collection Procedures

Research data collection procedure is as follows: administrative procedures

1) Data collection was conducted after the permission of the Head of Community Health Centers Pitu, as is done Research place (Permit attached).
2) Socializing the research plan on the head of the Public health center, and the community suffering from Hypercholesterol in the research site. The research describes the research objectives, benefits, and research procedures, then discussed the technique of the consumption of capsules of LAOR in Pasie that will undergo a reduced cholesterol intervention procedure.
3) The studies will be conducted to determine which patients' cholesterol level intervention. The studies provide information about the purpose of the patient to be responded Research by signing sheets (informed consent).
4) Perform maintenance of the respondent in accordance with the inclusion criteria
5) Respondents were grouped into two groups: group I was an intervention group that received standard measures to extract laor while the second group are those which are standard measures without giving Capsules SJA Laor.
6) The studies identify patients in the intervention group in which patients with odd registration numbers, while patients in the control group were patients with an even number, then the patient is given a serial number of the respondents in accordance with the group on the sheets Research.

Intervention procedures

A. Intervention group

1. The studies will be conducted to make sure patients intervenes procedure cholesterol levels and introduce themselves to the respondent.
2. The studies give an explanation to the respondent about the meaning, purpose, method, Laor Capsules benefits for respondents and time of execution, Laor Capsules granting procedures.
3. Give the respondent to ask questions and give informed consent, asking for a signature as proof of

consent for respondents who are willing to follow the activities of Research.

B. The control group

Patients in the control group examined cholesterol levels by 2 times without consuming Capsules Laor.

Data processing

Data processing will be performed using through stages as follows:

editing

This activity is done to examine any data, relating to whether there is an error and completeness of the data is that all valid data to be processed.

coding

Provide information on each code that has been collected at each DTA, so as to facilitate the processing of data. Data in the form of letters changed in terms of numbers so it is easy to analyze the data and speed up the data entry process. This is done by providing the code (1) for the intervention group and code (2) for the control group.

Data entry

Data have been collected fed into a computer for further data analysis using statistical Program for social science (SPSS)

Data cleaning

Data in the check back to make sure that there is nothing wrong data before the data analysis by a computer program.

Data analysis

Univariate analysis

Data analysis is the process of parsimony of data into a form that is easier to read and Interpretation. In this process done statistically, one of its functions to simplify the data Research great amount into information that is simple and easy to understand.

Bivariate analysis

Bivariate analysis was conducted to determine the form of the relationship between the two variables (independent and dependent). The tests used are:

1. test T

Doing bivariate analysis for categorical variables of type-independent pairs. Measurement of pre-test and post-test control group, measurements before and after giving Extract laor (intervention group). These testers conducted to influence consumption identification extracts laor to the decrease in total cholesterol levels by comparing the values before and after the behavior. The significance of test results determined test value table T <0.05.

Privacy (secrecy).

Research keep secret the identity of the respondents did not write the name, but with a specific code so that the respondents did not feel worried Justice.

DISCUSSION

Gender is one factor that can influence the increase in cholesterol, the results of the 10 respondents Research Obtained that most respondents who suffer hypercholesterolemia male sex, where women (40%) and men (60%). This is the form with the results Research Annisa Mustika (2019) (11) states that the existence of a significant relationship between sex with elevated levels of cholesterol in which women are at risk of cholesterol high they are due factor hormonal, higher female consume foods that contain fat more affordable and tasty. While other influences factors is age.Dalam this research showed that respondents aged 46-55 years suffer hypercholesterolemia 6 more many respondents (60%) and the least>

To Research by level of education, obtained patient hiperkoleterolmia mostly respondents with education level SD 4 respondents (40%) while the least is the level of education SARJANA 1 respondents (10%), Junior 2 respondents (20%), and no school 3 respondents (30%). This is because the higher education level of the more knowledge and information to be received by respondents in leading a healthy lifestyle.

This research was conducted in June 2019 with the number of respondents as many as 10 people are Pitu Village community. This study uses a quantitative research study design quasi Experiment Design With Pre-Post Test Control Group. This study aims to obtain empirical evidence and the correlation between the consumption of laor to the decrease in total cholesterol levels in patients with hypercholesterolemia in the village of Pitu.

Respondents in the intervention group sex as much as 1 and the control group were 3 people while the male sex in the intervention group of 4 people and in control group 2. According to (19) levels of cholesterol in the blood is always changing at any time, although this change is not much difference. Many factors influence mainly genetic factors, age, gender, and the environment. In addition, stress can also trigger increased cholesterol. Changes in diet also play a role in changes in cholesterol levels in the blood.

The effect of consumption laor to lower total cholesterol in patients with hypercholesterolemia due to laor compounds contains Oleic Acid, Linoleic Acid, Linolenic Acid, EPA and DHA. This fact makes reduction Cholesterol is a major goal in achieving better outcomes for patients who may be predisposed to the condition. Laor supplements incorporate into every day groceries to those who have been diagnosed with high

LDL levels, can provide significant healing. Evidence that laor can combat bad cholesterol (LDL), very much. By making laor a healthy intake of natural supplements every day, we can protect ourselves from the effects of high levels of bad cholesterol in the blood.

Research conducted by Mapanawang et al on the effect of leaf consumption Gedi to decrease cholesterol levels in which there is a compound Oleic Acid. Oleic Acid compound is also found in the Loar. When compared to consume and consume the leaves Gedi laor, Laor it consumes more effective for lowering cholesterol levels because in Laor there are several compounds contained therein, namely: a compound Oleic Acid, Linoleic Acid, Linolenic Acid, EPA, and DHA. Compounds present in the leaves gedi only lowers cholesterol, whereas compounds that exist in Laor lower cholesterol levels, help fight heart disease, reduce blood cholesterol and risk of coronary heart disease, contributes to brain and nerve tissue, in addition, Laor also has a lot of protein and also serves as an antibiotic.

The results of the T-test test analysis showed the value of T calculated 3364 (larger than the value of the T table 2,776) with a value of $\alpha = 0.001$. From the research results have been obtained value $\alpha = 0.001$ thus have proved that are acceptable and Ha Ho is rejected (if the value of $\alpha > 0.05$).

Decision-making in Test Paired sample t-test is based on the significant value with SPSS.

1. If the value of the probability or sig (2-tailed) <0.05, then there is a significant difference between the levels of cholesterol in pre and post the data, which means there are significant Laor consume in lowering total cholesterol levels.
2. Conversely, if the value of the probability or sig. (2-tailed)> 0.05, there is NOT a significant difference between the levels of cholesterol in pre and post the data, which means there is no effect of consuming Laor in lowering cholesterol levels.

In this research note that there is significant influence by consumption laor intervention in patients with hypercholesterolemia. It can be seen from the analysis of SPSS 25.0 to test T-test, showed that the value of $\alpha = 0.001$

CONCLUSION

Based Research results, it can be concluded that:

1. The average cholesterol level in the experimental group before consume capsule laor (pre-test) get there 3 respondents in the category thresholds (200-239 mg/dL) and 2 respondents with high category (> 240 mg/dL).
2. Results cholesterol content measurement (post-test) in the experimental group showed decreased levels of cholesterol in patients with hypercholesterolemia after consume respondents Capsules Laor where the average cholesterol levels are in the normal category (<200 mg/dL).
3. Research results obtained from the difference in the average cholesterol level in the control group, whereas in the experimental group was no difference in pre and post-test that decrease cholesterol levels in patients with hypercholesterolemia due Influence Capsules Laor consumption while the measurement of cholesterol levels.

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