Saturated Fat Acid Food Consumption Correlation with Hypertension in Elderly Woman

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Abstract

Context: Hypertension is a disease often encountered in the elderly. This occurs due to physiological and lifestyle changes including eating habits. Food consumption habits of high cholesterol sources can result in the accumulate of fat in blood vessels and forming plaque. It result in an increase in blood pressure that leads to hypertension. The purpose of this research is to analyze the correlation of food consumption habits saturated fat sources with hypertension in elderly woman.

This study uses case control design with sample of elderly female in Health Centre Gunung Anyar Surabaya. Subject consisting of 28 cases and 28 controls. Data food consumption of saturated fat obtain through recall method Semi Quantitative Food Frequency Questionnare (SQ-FFQ). Blood pressure is measured using sphygnomanometer. The statistical test performed is the chi square test.

The result showed that there was a significant relationship between food consumption saturated fat acid sources with hypertension among elderly woman (p = 0,01).

The conclusion of this study is that there is a significant relationship between the food consumption of saturated fat acid with hypertension in elderly women.

Keyword: *Hypertension, saturated fat acid, elderly woman*

Introduction

The elderly are a group of population aged 60 years or more. The increase number of elderly people is followed by the increase in diseases faced by the elderly population especially the degenerative disease. [(1)]This process occurs at age decreased the ability of networks to improve and maintain the normal functions of the body one is on cardiovascular. Changes in the structure of the arteries thicken and become increasingly rigid causes the onset of arteriosclerosis. This condition forces the blood flowing through the blood vessels to narrow, so that an increase in blood pressure and leads to hypertension. Hypertension experienced by particularly vulnerable age group. An increase in blood pressure is more prone to occur in the elderly women.[(2)] This occurs due to hormonal changes and a decline in esterogen produced by elderly women who have undergone the process of menopause, so vasocontriction blood vessels and result in an increase in blood pressure. [(2)]

Hypertension is one of the diseases with a high incidence in the developing world middle income down. The disease is influenced by a variety of risk factors, grouped into two, namely the risk factors can be modified and cannot be changed. Risk factors can be modified, among others, eating habits and lifestyle, while

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risk factors cannot be changed include age, gender, and history of family hypertension.[3]High blood pressure is to be one of the risk factors to the emergence of other healt problems such as heart disease, stroke, kidney and may cause death of.[4]

Hypertension in the elderly regard very closely with changes in physiological condition and lifestyle changes such as eating habits. Dietary intake and foods high in saturated fatty acid can cause the occurrence of elevated levels of LDL cholesterol in the blood is saturated fat and cholesterol may trigger someone experiencing high blood pressure and heart problems. High cholesterol in the blood can stimulate the formation of plaque in the arteries and cause constriction of the arteries and decrease the rate of elacsticity of blood vessels.[5]

Prevalention of hypertension in Indonesia experiencing an increase from 25,8% in 2013 to 34,1% in 2018. East java was ranked the sixth highest Indonesia hypertension cases.[6] Gunung Anyar subdistrict which is in Surabaya. The subdistrict has a Clinic with five elderly Posyandu units. The disease has become the number one ranking among the top ten trends of other health problems that occur on the elderly as Diabetes Mellitus (DM), tuberculosis, coronary artery disease, and others. The number of hypertension in Gunung Anyar Surabaya enough experience increased dramatically more than doubled in the year 2016-2017.[7]

Based on the result of observation of the eating habits of the community showed that the rate of consumption of food sources of fat high enough, frequent consumption of food ingredients such as coconut milk, duck meat, organ meats, chicken skin and other as well as the confusion of ways of processing food such as fried oil that its use is already more than twice. Based on the above discussion, the author would like to examine the relationship between consumption pattern food sources of saturated fat with incident hypertension in elderly women in Gunung Anyar Surabaya.

Material and Method

This research is observational analytic research because researchers only make observations without giving treatment or intervention to the respondents and aim to determine the effect of the variables to be studied. The design of this study uses quantitative design case control study.

The research was carried out in March and April 2019. The population used in this study was all members of the clinic group in Health Centre Gunung Anyar Surabaya with total population of 210 elderly people. Entirely divided into five clinic group. The total population, sample taken using a purposive sampling method taking into account the criteria already defined by the researchers. Sample calculation using the formula with a large proportion of Kuntoro exposure control group 0,82. Based on the results of the calculation, obtained the number of samples as many as with division 28 cases and 28 control group.

The sample was chosen following a predertemined inclusion criteria according to their respective group that is listed as a member of the clinic group elderly Health Centers Gunung Anyar that attend activities in age range 60-70 years, measured hypertension systolic ≥130 mmHg and diastolic ≥80 mmHg or when the research process in underway for the case group, and not hypertension with measurement result systolic <130mmHg and or diastolic <80mmHg when research underway for the control group. Blood pressure measurement are conducted by doctor of clinic group. As for the criteria of exclusion among others are currently taking any medication-related hypertension while research progresses, and not willing to research respondents. After selected using these criteria, the respondent provided an explanation of the information research that will be done and signed a research agreement if the sheet was prepared following a series of research. The collected data on food consumption level source of saturated fatty acid via questionnaire sheet Semi Quantitative Questionnaire (SQFFQ) that contain food sources of saturated fat. Next, measurement of blood pressure using Sphygnomanometer. Assessment of SQFFQ through multiplication between the frequency of consumption, and serving of food consumed of 1 month. It also carried out related data collection characteristics of the respondents include age, family history of hypertension, level of education and employment of the respondent through the questionnaire sheet characteristics of respondent. The data already collected and the processed by computer software programs and use statistical analysis univariate and bivariate. Data characteristics of respondents subject presented in the form of frequency distribution, then to consumption patterns of food sources of saturated fatty acid are analyzed with the application NutriSurvey and compared with the percentage of

recommended consumption is then grouped into two categories namely enough if ≤10% in a day, and more if >10% in a day.(8)dyslipidemia, elevated blood pressure and insulin resistance. Metabolic syndrome affected by changes in lifestyle and unhealthy dietary patterns with high cholesterol, saturated fatty acid and trans fatty acid. Objective. The study conducted to know relationship between fat consumption with metabolic syndrome among adult people in Denpasar city. Method: The case control study designed was applied. The cases were adult people who had metabolic syndrome, and the control was healthy people from the case-neighboring household. Total subject were 130, taken by consecutive sampling: 65 cases and 65 controls. The subject identity, fat intake, waist circumference, blood pressure and fasting blood sugar were collected. The food frequency questionnaire (FFQAnalysis using correlation chi-square test with application of SPSS v20 done to analyse the relationship between the consumption patterns of food sources of saturated fatty acid with incident hypertension. Analysis of the Odd ratio (OR) was conducted to access the relationship or the magnitude of the risk factors of consumption patterns of food sources of saturated fatty acid with incident hypertension.

Findings:

A. Characteristics of Respondents: The characteristics of respondents who examined in this research include age, family history of hypertension, the final level of education and employment of the respondent. The number of the subject involved in research is as much as 56 respondents with division 28 respondents cases group and 28 respondents controls group.

Respondent characteristics included age, education level, family history of hypertension and work. data on the distribution of respondents characteristics are presented in Table 1.

Based on Table 1, it can be seen that the majority of control group respondents aged 60-65 years, then case group respondent aged 66-70th. Majority of case group have nota family hypertensive historyan, and majority of control group have not to. Education level graduated from elementary school for cases group, then senior high school for control group. While the economic factors of the majority of respondents case and controlare housewife.

Table 1. Distribution of Characteristics of Respondent

No	Characteristics of Respondent		Cases	Control
			n	
1.	Age	60- 65 years	12	21
		66- 70 years	16	7
2.	Family history of hypertension	Yes	11	10
		No	17	18
3.	Educational Level	Not School	0	0
		Elementary School	9	2
		Junior High School	8	3
		Senior High School	7	15
		College	4	8
4.	Job	Employe	0	0
		Entrepreneur	5	2
		Farm Workers	0	0
		Housewife	15	15
		Others	8	11

B. Consumption patterns of food sources saturated fat: Consumption patterns of food sources of saturated fat acid in this study measured by interview Semi Quantitative Food Frequency Questionnaire (SQ-FFQ) include the number, type and frequency. Each individual consumes food sources of fat with the type, amount and frequency. The consumption of saturated fat are categorized either when the maximum consumption of total energy consumed in a day. Dietary saturated fats include saturated fat percentage compared to the total energy consumed in a day and categorized into enough if ≤10% and more if >10%.(9)

Sources of saturated fats are most often consumed by respondents is coconut oil, butter and margarine. In addition, the source of the saturated fat that comes from animal is like chicken with its skin, beef and duck meat, petrol, goat meat, offal, and others. The majority of respondents to the foodstuffs processing by way of a fried in cooking oil that its use exceeded the recommendations >2x.

D. Distribution of fre quency food source saturated fatty acid in Health center Gunung Anyar Surabaya: Each individual consumes food sources of fat. So did the frequency of consuming foods. Frequency is measured in units of time : day, week, month, and never.

Table 2: Distribution frequency of food sources of saturated fat in a group of cases.

Food source SFA	Day (often)	Week (sometimes)	Month (rarely)	Never
	N	N	n	N
Cooking oil (>2x)	28	0	0	0
Margarine	2	8	4	14
Coconut milk	0	3	22	3
Egg Chicken	5	23	0	0
Chicken meat	0	25	2	1
Chicken skin	0	20	8	0
Beef	0	12	16	0
Duck meat	0	5	16	7

Based on Table 2, it can be noted that most of the respondents case consumed cooking oil on a daily basis with the use of more than twice the number of 28 respondent. Average use oil for frying until the color turn black. As for the food the most often consumed on a weekly basis are egg, chicken, chicken skin. Next, food ingredients consumed monthly us coconut milk as much as 22 respondents.

Table 3: Distribution frequency of food sources of saturated fat in a group controls.

Food source SFA	Day (often)	Week (sometimes)	Month (rarely)	Never
	n	N	n	N
Cooking oil (>2x)	28	0	0	0
Margarine	0	5	9	14
Coconut milk	0	2	15	11
Egg chicken	3	25	0	0
Chicken meat	0	20	8	0
Chicken skin	0	15	10	3
Beef	0	5	15	3
Duck meat	0	3	18	7

Based on table 3, it can be noted that most of the respondents case consumed cooking oil on a daily basis with the use of more than twice the number of 28 respondent. On this, control group respondents have started to reduce the use of oil. They prefer to use the oil as necessary, so that no oil left jelantah. So that the oil used is not to change the color to black. As for the food the most often consumed on a weekly basis is egg chicken, chicken, chicken skin cooked way fried. Next, food ingredients consumed monthly us coconut milk as much as 15 respondents.

C. Correlation food source saturated fat with hypertension elderly woman at Health Centre Gunung Anyar Surabaya: The result was be represented in Table 4.

Table 4. Correlation food consumption saturated fat with hypertension

Categorie	Case	Control	OR	95% CI	P value
	n	n			
Cukup	4	12	8	2.18-29.24	0,01
Lebih	24	16			
Total	28	28			

Discussion

Based on the results of research that has been done, it can be seen that the age of respondents who suffer from hypertension is mostly in the age range of 65-70 years. While respondents who did not have hypertension were in the age range of 60-65 years. This shows that the more age increases, the greater the risk of hypertension. In line with the results of Riskesdas (2013) which stated that the prevalence of hypertension will increase along with increasing age, this is in line with research conducted by Sriringoringo (2013) and Pramana (2016) who found an association of age with the incidence of hypertension.[10]

Based on the result, level of education affects the level of knowledge person. In the results of the study it was found that hypertensive respondents mostly had a history of elementary education. As for the respondents who are not hypertensive, most of them have a history of high school education. This is in line with the research conducted by Fitriyani (2012) in several health centers in Cilegon City, which also stated the same thing that the education of respondents with hypertension was mostly graduated from elementary school.

Based on the results of the study it can be seen that there was no significant difference between the types of work of respondents with the incidence of hypertension. This is in line with research conducted by Iskandar et al. (2012) which shows that there is no significant relationship between work and the degree of hypertension. Although work does not have a direct effect on the incidence of hypertension, but the type of work a person is very influential on income, the selection of food ingredients, and the ability to get the type of food someone consumes. (Purnama and Prihartono, 2013).[11]

There is not much history of hypertension found in

respondents who suffer from hypertension. This is in line with the research of Yeni et al. (2010) which states that there is no relationship between hypertension and a history of hypertension. This can be due to the risk factors for hypertension not only from hereditary factors, but also other risk factors such as smoking habits, improper diets, erroneous eating patterns such as high sodium and fat, obesity and metabolic syndrome which can cause hypertension (Kementerian Kesehatan RI, 2017).[12]

Chi-Square analysis results at shows that there is a significant relationship between the consumption of saturated fats with the genesis of hypertension on respondent cases and controls with the results of the p value = 0,01 (<0,05). Respondents who consume saturated fat that exceeds the recommendations of more than 10% total energy a day can increase the risk of incident hypertension eight times more likely than respondents who consume saturated fat enough ≤ 10% total energy a day.This is in line with the research ever undertaken by Salsabila in 2014 of the relationship between central obesity, fat energy intake with hypertension and sodium with the genesis of hypertension suggest that there is a meaningful relationship between fat intake with incidence of hypertension with a value of statistical test p value = 0,03.

ConclusionS

Consumption of saturated fat sources has a significant relationship with the incidence of hypertension in elderly women at the Gunung Anyar Health Center Surabaya. Respondents who had more than 10% saturated fat consumption had a risk of hypertension occurring 8.0 times than respondents who had a saturated fat consumption level of ≤10%.

Conflict of Interest: All authors have no conflicts of interest to declare.

Source of Funding: This is an article "Saturated Fat Acid Food Consumption Correlation With Hypertension In Elderly Woman" that was supported by self funding.

Ethical Clearance: The study was approved by the institutional Ethical Board of Universitas Airlangga Faculty of Dental Medicine Health Research Ethical Clearance Commission.

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