



The Relationship of Diet and Excessive Cholesterol Levels on The Incident of Stroke in Batin Mangunang Hospital, Kota Agung

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Abstract

Background: Dietary habit is something method of arranging quantity and type of food to maintain health, and nutritional status, and prevent or help recover the disease. People at risk who experience enhanced cholesterol are those who have habit patterns eat foods rich in saturated fat. The prevalence of stroke in Indonesia is 10.9% or estimated as many as 2,120,362 people and the prevalence happen stroke in Lampung Province is as many as 16,233 people. Based on the results A pre-survey conducted at Batin Mangunang Regional Hospital, Kota Agung, of 10 stroke patients, found 7 of their pattern of poor eating and levels of cholesterol excessive. **Purpose:** Research purposes This for know the connection pattern eating and levels of cholesterol to incident stroke at Batin Mangunang Hospital, Agung City. **Methods:** Types of research This is quantitative with a design study using cross-sectional. Retrieval technique sample using purposive sampling. technique Data collection uses recorded data from medical and FFQ questionnaires. Study This was conducted in June 2023. Research sample totaling 31 respondents. **Finding:** Analysis bivariate in study This using the gamma test. Research results on variables pattern Eat with the incidence of stroke obtained p-value $0.045 < 0.05$ and for variable rate cholesterol excessive with. The incidence of stroke obtained a p-value of $0.037 < 0.05$ so can concluded that there is a significant relationship between the pattern and rate of cholesterol excessive to incident stroke disease. **conclusion:** Recommended For always guard pattern Eat with consume containing foods carbohydrates, protein, vegetables and fruit as well as reduce foods high in fat.

Keywords: diet, cholesterol levels excessive, stroke

Introduction

Strokes are something conditions in which signs of clinical develop quickly, appear as deficit neurological possible focal point severe and ongoing for 24 hours or more, and/ or cause death without obvious cause besides reason vascular. vascular[1]. The global stroke rate according to data from the World Stroke Organization (2018) shows there were 13.7 new stroke cases and around 5.5 million deaths as a result of any stroke the year. About 70% stroke and 87% disability and death consequences of stroke

occur in low-income countries low and middle [2]

Based on the doctor's diagnosis in the elderly population more From 15 years, the prevalence of stroke in Indonesia in 2018 was 10.9 % or estimated as many as 2,120,362 people (Indonesian Ministry of Health, 2018). Prevalence happen stroke in Lampung Province as many as 16,233 people and in the Regency Tanggamus as many as 2,457 people experienced it stroke [3].

Classification factor Stroke risk is based on presence or or not risk the can

overcome or changed. Risk factors are not can modified covers genetics, age, type gender, race, and disorders default vessels blood. Temporary that, factor possible risks modified covers hypertension, diabetes mellitus, habits smoking , level cholesterol excess (hypercholesterolemia), obesity, consumption alcohol , lack of sport , pattern eat a lot contains fat, abuse drugs , and stress [4]

One of factor risk stroke is rate cholesterol excess (hypercholesterolemia), namely disturbance marked lipid metabolism with enhancement rate total blood cholesterol. Cholesterol levels excessive estimated led to 2.6 million deaths and 29.7 million disability every year , rate cholesterol excessive can detected with method do it inspection blood and if rate cholesterol >200 mg/dL then said suffer hypercholesterolemia [5]

Beside cholesterol high, existence ratio cholesterol whole against high density lipoprotein (HDL) can also become factor risk. Ratio cholesterol whole to HDL is comparison between rate whole cholesterol with HDL, calculated with share total cholesterol value with mark HDL cholesterol. For men , ratio cholesterol whole to good HDL should not enough of 4.6, while For woman should not enough of 4.0 [6]

Higher total cholesterol value tall than HDL value can be result various problem health. This matter can cause freezing blood , inflammation ,rupture vessels blood , and accumulation plaque or atherosclerosis which is factor reason a number of condition health such as ischemic stroke [7]. Cholesterol levels most often excessive found in women compared to man Because lack of activity hormone estrogen after woman experiencing menopause [2].

His height rate cholesterol in blood is serious problem Because is one of factor risk from various type disease No infectious like heart disease, stroke and diabetes

mellitus. A number of factor affecting rate total cholesterol is pattern Eat high fat, habit smoking , kind gender , obesity and activity physical [8]

People at risk experience enhancement cholesterol is those who follow pattern eat foods rich in saturated fat. Common source of saturated fat is meat, butter, cheese, ice cream, and the like. Progress technology has influence style life and pattern eating in the community. Currently , pattern consumption public has changed or not Again notice balance consumption containing foods various type balanced nutrition . On the contrary , society tend consume foods rich in fat, especially saturated fat and cholesterol , as well low fiber [8]

Research conducted by [9]about influence pattern Eat to rate total cholesterol with results study show that There is connection pattern Eat with incident hypercholesterolemia . Research conducted by [10]on Analysis of Related Factors With Stroke Incident at Indramayu Regional Hospital with results study show that the person who has rate cholesterol excessive in blood 2.7 times risk of CVD-SH stroke or CVD SNH compared with people who have rate normal cholesterol .

Research conducted [11] regarding Relationship between Total Cholesterol Levels and Incidence of Stroke in Patients Treated at RSUD DR.M. Yunus Bengkulu with research on 30 patients who suffered hemorrhagic stroke , found that 20 people have rate high cholesterol and 6 people have rate quite a bit of cholesterol tall. Research results the show that excess rate cholesterol can become reason happen stroke disease

Based on results pre -survey, prevalence of stroke in Batin Mangunang Regional Hospital from month June until October 2022 as many as 45 people. Based on results inspection out of 10 stroke patients, 7 out of 10 people who suffer from stroke experience pattern bad eating rate

cholesterol excessive and 3 people not experience pattern bad eating rate cholesterol excessive. Based on phenomenon above, researcher interested For do study with objective For find out " The Relationship between Diet and Cholesterol Levels Excessive To Incident Stroke at Batin Mangunang Regional Hospital Kotaagung Tanggamus “.

Methods

Scope study This is in the Nursing area Medical Surgical with type study quantitative fork know amount from connection rate cholesterol excessive to incident stroke in stroke sufferers at Batin Mangunang Regional Hospital.

Research design This done in a way analytic with cross sectional approach. Taking sample done with purposive sampling method, namely election subject based on characteristic features or characteristic certain related matters with characteristics population. Data obtained from notes record medical stroke patient at Batin Mangunang Regional Hospital from month June until October as many as 45 people. Study This has done in the month June 2023.

Result

1. Univariate Analysis

a. Distribution Eating Pattern Frequency

Table 4.2

Dietary habit	Amount	Percentage %
Bad	20	64.5
Good	11	35.5
Amount	31	100

In table 4.2 from 31 respondents It was found that 20 respondents (64.4%) had pattern poor eating and 11 respondents (35.5%) had pattern eat well .

b. Distribution Frequency of Cholesterol Levels Excessive

Table 4.3

Cholesterol levels	amount	Percentage %
Tall	21	67.7
Good	10	32.3
Amount	31	100

In table 4.3 from 31 respondent It was found that 21 respondents (67.7%) had rate high cholesterol and 10 respondents (32.3%) had rate good cholesterol.

c. Distribution Stroke Frequency

Table 4.4

Strokes	Amount	Percentage %
Hemorrhagic Stroke	5	16.1
Non Hemorrhagic Stroke	26	83.9
Amount	31	100

In table 4.4 from 31 respondents It was found that 5 respondents (5%) experienced hemorrhagic stroke and 26 respondents (83.9%) experienced non- hemorrhagic stroke.

d. Distribution frequency respondents based on type sex

Table 4.5

Gender	Amount	Percentage %
Man	14	45.2
Woman	17	54.8
Amount	31	100

In table 4.5 from 31 respondents obtained part big respondents manifold sex Woman that is as many as 17 respondents (54.8%) and 14 respondents (45.2%) were of the same type sex man.

e. Characteristics Respondent Based on Education Level

Table 4.6

Level of education	Amount	Percentage %
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elementary school	20	64.5
JUNIOR HIGH SCHOOL	4	12.9
SENIOR HIGH SCHOOL	3	9.7
College	4	12.9
Amount	31	100

In table 4.6 from 31 respondents It was found that 20 respondents (64.5%) had level elementary school education, 4 respondents (12.9%) have level junior high school education, 3 respondents (9.7%) have level high school education, and 4 respondents (12.9%) had level education college tall.

f. Distribution Frequency Respondent Based on Work

Table 4.7

Work	Amount	Percentage %
Farmer	7	22.6
Civil servants	3	9.7
Self-employed	4	12.9
IRT	14	45.2
Fisherman	3	9.7
Amount	31	100

In table 4.7 from 31 respondents It was found that 7 respondents (22.6%) had work farmers, 3 respondents (9.7%) have civil servant jobs, 4 respondents (12.9%) have work self-employed, 14 respondents (45.2%) had housewife job, and 3 respondents (9.7%) have work fisherman.

2. Bivariate Analysis

a. Diet with Stroke in Batin Mangunang Regional Hospital, Agung City

Dietary habit	Strokes				Total	P Value
	Hemorrhagic stroke		hemorrhagic stroke			
	N	%	N	%	N	0.045
Dietary habit	Bad	1	3.2	19	61.29	20
	Good	4	12.9	7	22.58	11
Total	5	16.12	26	83.87	31	

Based on table 4.8 is known that gamma statistical test results obtained mark coefficient or a value of 0.045 <0.005, meaning there is connection between pattern Eat with incident stroke at Batin Mangunang Hospital, Agung City

b. Relationship between cholesterol levels With Stroke at Batin Mangunang Hospital, Agung City

Cholesterol levels	Strokes				Total	P Value	
	Hemorrhagic stroke		hemorrhagic stroke				
	N	%	N	%	N		
Cholesterol levels	Tall	1	3.22	20	64.51	21	0.037
	Good	4	12.90	6	19.35	10	
Total	5	16.12	26	83.86	31		

Based on table 4.9 is known that test results gamma statistics obtained mark coefficient or a value of 0.037<0.0, meaning there is connection between rate cholesterol with stroke at Batin Mangunang Regional Hospital great city.

Discussions

1. Analysis Univariate

a. Dietary habit

Based on results analysis obtained is known that of 31 respondents obtained 20 respondents (64.5%) experienced results pattern poor eating and 11 (35.5 %)

respondents experience pattern eat well. Researcher conclude that pattern eat a lot experienced respondents is pattern Eat bad.

Study This in line with WHO recommendations recommend fat intake does not can exceeds 30% of total energy daily. This is equivalent with 67 grams of fat per day, if the total energy required per day is 2000 calories so amount This equivalent with 5-6 spoons Eat oil per day. Based on content sour fat, oil shared into two (two) groups namely saturated fat and non- fat fed up. Foods that contain no fat fed up tend originate from food vegetable, except oil coconut. Meanwhile, saturated fat usually originates from food animal origin (Ministry of Health, 2018).

Based on interview using a semi-quantitative Food Frequency Questionnaire (FFQ), researcher opinion that part big pattern experienced eating respondents is pattern bad eating but researchers also found respondents experience pattern eat well, p This can conclude that part big respondents own pattern bad eating Because the more bad pattern Eat somebody Can influence degrees his health.

b. Colesterol levels

Based on results analysis is known that from 31 respondents It was found that 21 respondents (67.7%) had rate high cholesterol and 10 respondents (32.3%) had rate good cholesterol. Researcher conclude that rate experienced cholesterol respondents is rate cholesterol tall.

Study This in line with research conducted by [3] " Relationship with Cholesterol Levels To Incidence of Recurrent Stroke in the Stroke Unit of Dr. Hospital. Soepraoen Malang" shows part big respondents own rate cholesterol tall as much as 83% and levels normal cholesterol as much as 17% with mark significant 0.014 ($p < 0.05$) which means There is connection between rate cholesterol with repeated strokes.

Based on results research, researcher opinion that rate your cholesterol respondents is rate high cholesterol and researchers also found respondents with rate good cholesterol, p This can concluded that part big respondents own rate cholesterol tall Because the more tall rate cholesterol Eat the more influential to his health.

c. Stroke

Based on results analysis can is known that from 31 respondents It was found that 5 respondents (16.1%) experienced hemorrhagic stroke and 26 respondents (83.9%) experienced non- hemorrhagic stroke. Researcher conclude that part big respondents had a non -hemorrhagic stroke.

Study This in line with study [12] " Risk Factors for Ischemic and Hemorrhagic Stroke Patients " shows as many as 83 people (82.2%) experienced ischemic stroke and 18 people (17.8%) had hemorrhagic stroke so that can concluded that most stroke patients is an ischemic stroke .

Study this is also in line with study [13]"Overview of Risk Factors and Types of Stroke in Inpatients in the Internal Medicine Department of South Solok District Hospital " shows that the most common type of stroke experienced patient is ischemic stroke (61.46%). Majority patient own factor risk hypertension (82.3%), hyperglycemia (63.54%), increased LDL (65.63%), increased triglycerides (67.79%), partial big patient own employees who do work clean House stairs (43.75%).

Based on results research, researcher opinion that respondents suffered a non-hemorrhagic stroke more Lots than respondents who suffered hemorrhagic stroke.

2. Bivariate Analysis

a. The Relationship Between Diet and Incident Stroke at Batin Mangunang Hospital, Agung City

Gamma statistical results were obtained mark coefficient or value 0.045 meaning there is connection between pattern Eat with incident stroke at Batin Mangunang Hospital, Agung City. Based on gamma statistical test results were obtained mark significant or $p > \text{value} = 0.045 < 0.05$ meaning there is significant relationship between pattern Eat with incident stroke at Batin Mangunang Hospital, Agung City. Researcher conclude that pattern bad eating can influence incident stroke disease.

Research result This in line with [14] entitled Influence of Diet and Hypertension To Incident Stroke in the Special Regional Hospital of South Sulawesi Province . Research result This show exists significant relationship between pattern Eat with stroke at home Sick special area South Sulawesi Province with $p \text{ value} = 0.003 < \alpha = 0.05$. matter This means that the more bads pattern Eat somebody so will the more all influence stroke occurrence.

Research result this is also in line with study [15] about connection pattern eating and behavior with Stroke incident at Lanto Daeng Pasewang District Hospital Regency Jeneponto . Research result This show exists connection between type Eat with incident stroke with $p \text{ value} = 0.013 < \alpha = 0.05$, and $p \text{ value} = 0.006 < \alpha = 0.05$ which shows there is the relationship is also between amount Eat with stroke occurrence.

Study This is also supported by research [16] entitled Connection Activity Physical and Diet With Recurrent Stroke Incident at Ahmad Yani Regional Hospital, Metro City. Based on results study obtained that mark significant $p \text{ value} = 0.002$, $OR = 6$ which means there is connection pattern Eat with the incidence of recurrent stroke at Ahmad Yani Regional Hospital, Metro City.

Based on results analysis research, researcher opinion that Lots Respondents who experienced strokes were caused by habits bad eating, like too Lots consume food fatty. According to results interview, the usual fat-rich foods consumed respondents originate from animal fat, coconut milk, and oil.

b. Relationship to Cholesterol Levels Excessive with Incident Stroke at Batin Mangunang Hospital, Agung City

Gamma statistical test results were obtained mark coefficient or value 0.037 which means there is connection between rate cholesterol excessive with incident stroke at Batin Mangunang Hospital, Agung City. Based on gamma statistical test results were obtained mark coefficient significant or $p > \text{value} = 0.037 < 0.05$, meaning there is significant relationship between rate cholesterol excessive with incident stroke at Batin Mangunang Hospital, Agung City.

Research result in line with study [17] entitled Cholesterol Levels With Recurrent Stroke Occurrence at Prof. Hospital. DR. H. Aloeisaboe Gorontalo City Gorontalo Province. Research result show that number highest with the incidence of recurrent stroke in respondents who suffered cholesterol amounting to 15 respondents (62.5%) whereas Lowest happened to the respondent with stroke does not occur repeated that is there were 9 respondents (37.5%). After statistical tests were carried out $p \text{ value} = 0.010 < 0.05$ which means There is connection between enhancement rate cholesterol with stroke at Prof. Hospital. DR. H. Aloeisaboe Gorontalo City Gorontalo Province.

Research result this is also in line with [18] research on Relationship between Total Cholesterol Levels and Incidence of Stroke in Patients Treated at RSUD DR. M. Yunus Bengkulu. Research result show $p \text{ value} = 0.010 < 0.05$ which means There is

connection between rate total cholesterol with incidence of stroke in treated patients in room Stroke inpatient at RSUD Dr. M. Yunus Bengkulu.

Based on results analysis research, researcher opinion that part big respondents own rate cholesterol excess that can be result stroke occurrence. This matter because rate high cholesterol Can cause happen accumulation of fat in the vessels blood so that Genre blood to brain experience possible disturbance cause the occurrence of a stroke. With a number of assumptions on researcher conclude that There is significant relationship between rate cholesterol with stroke incidence at Batin Mangunang Hospital, Agung City.

Conclusion

Eat a lot of food experienced Stroke patients at Batin Mangunang Regional Hospital, Kota Agung are pattern bad eating as many as 20 respondents (64.5%) and levels lots of cholesterol experienced Stroke patients at Batin Mangunang Regional Hospital, Kota Agung are rate cholesterol tall as many as 21 respondents (67.7%). Gamma statistical test results on the pattern Eat with incident acquired stroke mark significant or $p > \text{value} = 0.045 < 0.05$ meaning there is significant relationship between pattern Eat with incident stroke at Batin Mangunang Regional Hospital, Kota Agung and results of gamma statistical tests on levels cholesterol excessive with incident acquired stroke mark significant or $p > \text{value} = 0.037 < 0.05$ meaning there is significant relationship between rate cholesterol excessive with incident stroke at Batin Mangunang Regional Hospital, Kota Agung. Distribution frequency partial stroke patient big manifold sex Woman as many as 17 respondents (54.8%) with level. The most education was elementary school as many as 20 respondents (64.5%), and

had work as housewives were 14 respondents (45.2%). Is known that of 57 respondents support family good 22 (38.6), fair 26 (45.6%), and poor 9 (15.8).

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