International Journal Of Health, Engineering And Technology (IJHET) *E-ISSN 2829 - 8683*
Volume 2, Number 1, May 2023, *Page.19 - 25*
Email : editorijhess@gmail.com

Analysis of risk factors for hypertension in the community in the working area of the Sigumpar Health Center, Sigumpar District Toba Regency in 2022

Minar Lenny Situmorang
STIKES Arjuna

Corresponding Author
Email : minarlennys@gmail.com

Abstract

Hypertension is a disease that occurs when a person's blood pressure increases > 140 mmHg and/or diastolic blood pressure > 90 mmHg. Data from the North Sumatra Provincial Health Office in 2018, hypertension was ranked first out of the 10 most common diseases, namely 70,195 new cases and 184,946 old cases and the most at the Sigumpar Health Center with 585 cases, but in 2020 the incidence of hypertension increased to 1,371 cases. This study aims to analyze the relationship between gender, age, smoking habits, physical activity and fruit and vegetable consumption with the incidence of hypertension in the community in the working area of the Sigumpar Health Center. The research design is analytic observational with a cross sectional approach. The place of this research is in the working area of the Sigumpar Health Center and the time of the research is November 2022. The population in this study is all people in the working area of the Sigumpar Health Center. The sampling technique uses a non-probability sampling technique with consideration of the completeness of patient data. The instrument used was an early detection questionnaire. The dependent variable was the incidence of hypertension and the independent variables were age, gender, smoking habits, physical activity and fruit and vegetable consumption. Data analysis used the chi square test. The results showed that there was a relationship between age (p-value 0.0001) and the incidence of hypertension, while gender, smoking habits, physical activity and fruit and vegetable consumption showed no relationship with the incidence of hypertension.

Keywords: Hypertension, Individual Characteristics, Habits

INTRODUCTION

Epidemiological transitions have occurred in the world and including Indonesia, there has been an epidemic transition log. Epidemiological transition is a change in the pattern of disease that was initially dominated by communicable diseases to become non-communicable diseases. One of the non-communicable diseases that appear during the transition of this disease is hypertension. Hypertension is a marked disease with long-term increases in blood pressure long. Hypertension is also known as the silent killer because hypertension is the hidden killer who was the original cause unknown or no symptoms at all. World Health Organization (WHO) in 2015 stated that people with hypertension in the world reached 1.13 billion people and only 36.8 % who took hypertension medication.

In 2019 according to WHO estimates the prevalence of hypertension globally is 22% of the total world population and of the total it is only less than a fifth of the make efforts to control pressure owned blood. But apparently in In 2008 the prevalence of hypertension had reached 972 Million cases (26.4%) of the total population. This shows that there is a significant difference Right between estimates. In 2019 and preva lensi in 2018. The prevalence of hypertension is in estimate that by 2025 the prevalence will increase to 29.2% of the total world population. Prevalence of hypertension by region WHO in 2019, countries that have preva The highest hypertension lens is the African region that's 27%, and the Southeast Asia region is fallow is in the 3rd highest position with a prevalence of 25% of the total population.

Based on data from the Toba District Health Office, the number of incidents of hypertension was 15,314 cases spread across the puskesmas. Hypertension was ranked among the 10 most common diseases at the Sigumpar Health Center, namely 585 cases. However, in 2020 the

incidence of hypertension has increased to 1,371 cases. The number recorded until February 2022 at the Sigumpar Health Center. Cases of hypertension increased to 2,043 cases of which 817 cases occurred in men and 1226 occurred in women.

RESEARCH METHODS

This study uses a type of researcher and quantitative research design The method used is observational analytic. The place of this research is in the region sigumpar health center work and time research is november 2022 The entire population in this study the community in the working area of the health center bro sigupar. Sampling technique using the non-probability sampling technique taking into account the completeness of the data patient. This study uses second data in the working area of the health center Sigumpar. Meru Non-communicable Diseases Feed is one of the public health efforts effort oriented promotive and preventive in controlling lian non-communicable diseases with involve the community starting from the planners implementation to monitoring and evaluation breast milk The role of the Non-Communicable Diseases Post is early detection and monitoring risk factors conducted with the interviewees directional way through the use of instruments integrated, routine and periodic way. On instrumen used were not subjected to a validation test and reliability because it uses instrumen used in pos.

executive officers collect good data through interviews and factor measurement the risk of individual postal participants who are kun junks. The data collected includes social data (respondent identity), interview data, Measurement data, counseling data and referrals. Measuring blood pressure using a device Sphygnomanometer / digital blood pressure that is in do by health workers. Interviews were conducted using a guessing instrument it history of infectious diseases in the family and oneself, physical activity, habits of eating vegetables and fruit, history of smoking, history of smoking smoking, history of alcohol consumption.

Smoking data was collected by asking questions and whether the respondent smokes accompanied by a choice answer yes or no. Fruit consumption data And vegetables. It was also asked whether the respondent consumed less fruits and vegetables (5 servings a day) with yes or no answer options. Physical activity data were also asked whether the respondent lacked physical activity (30 minutes/day or 150 minutes/week) accompanied by yes or no answer choices.

The variables analyzed were the dependent variable and the independent variable, the dependent variable was the incidence of hypertension and the independent variables were age, gender, activity physical fitness, smoking habits and fruit consumption and vegetables. Univariate data analysis to find out the distribution bar and percentage of each dependent variable namely hypertension and independent variables which include gender, age, smoking habit, physical activity, and fruit and vegetable consumption. Bivariate analysis to explain the relationship between the two variables, namely between the independent variable and the dependent variable using the chi square test with a significance level of 5% with a 95% degree of confidence.

RESULTS AND DISCUSSION

Distribution and frequency of hypertension events based on the incidence of hypertension, gender, Age, smoking habits, physical activity and fruit and vegetable consumption in the region the work of the Sigumpar Health Center can be seen
in the following table 1.

Table 1. Frequency distribution of Respondents based on the incidence of hypertension, type gender, age, smoking habit, activity physical bag and fruit and vegetable consumption.

Variable	Amount	
	Frequency	Percentage (%)
Hypertension events		
Hypertension	159	49.5
No hypertension	162	50.5
Gender		
Male	62	19.3
Female	259	80.7
Age		
At risk	193	60,1
Not at risk	128	39,9
Smoking habit		
Yes	17	5,3
No	304	94.7
Physical Activity		
Less	13	4
Just	308	96
Consumption of Fruits and Vegetables		
Less	273	85
Enough	48	15

Based on table 1 it can be known that respondents who suffer from hyper tension amounted to 159 (49.5%) and responseden who do not suffer from hypertension total 162 people (50.5%). Respondent who are more female many, namely 259 people (80.7%) and which is male 62(19.3%). based on age 193 are included in the se risk category large 193 (60.1%) and 128 (39.8%) included in the no-risk category. Respondents who have the habit of me smoking by 17 people (5.3%) and those did not smoke by 304 (94.7%). respondents who lack physical activity by 13 people (4%) and physical activity enough for 308 (96%) Respondents who eat enough fruits and vegetables 48 people (15%) and those who consume the fruits and vegetables by 273 (85%).

Further analysis was carried out to explain The relationship between the 2 variables is between the independent variables (gender, age, smoking habits, physical activity and fruit and vegetable consumption) and the dependent variable (hypertension).

Table 2. Relationship between gender, age,smoking habits, physical activity and consumption of fruits and vegetables with incidence and hypertensio

Variabel	hypertension	nonhypertension	p-value
Gender			
Male	29(46,8%)	33(53,2%)	
Female	130(50,2%)	129 (49,8%)	0,732
Age			
At Risk	126 (65,3%)	67 (34,7%)	

Not At Risk	33 (25,8%)	95 (74,2%)	0,0001
Smooking Habit			
Yes	6(35,3%)	11 (64,7%)	
No	153 (50,3%)	162 (49,7%)	0,338
Physical Activity			
Less	7(53,8%)	5(46,2%)	
Sufficient	152 (49,4%)	156 (50,6%)	0,973
Consumption of Fruits and vegetables			
Less	133 (48,7%)	140 (51,3%)	
Enough	26 (54,2%)	22 (45,8%)	0,589

From the research results it is known that only the variable age bell associated with the incidence of hypertension. While the other variables namely gender, smoking habits, smoking activity really, fruit and vegetable consumption activity with the incidence of hypertension in the community in the working area of the Sigumpar Health Center.

Discussion

The relationship between gender and the incidence of hypertension Based on table 2, the incidence of hypertension is more common in female respondents (50.2%) compared to male respondents (46.8%). The results of the statistical test with chi-square obtained a p-value of 0.72, because the p-value was > a (0.05) indicating that there is no relationship between gender and the incidence of hypertension in the community in the working area of the Sigumpar Health Center. These results show no relationship,due to the type of class respondents Min, the proportion of women is more than the respondent's gender man. This can be seen from the table It is known that the incidence of hypertension more in the female gender an 50.2% compared to male sex male 46.8%. it also corresponds to ha Pradono's (2010) research results show that show no relationship between types gender with hypertension (p-value=0.098) Other studies have also shown that was gender has no relationship significant with the incidence of hypertension, this may be due to the respondent the female sex is more ba more than respondents who are of the ke type male.

In this study more respondents female gender than res male gender.based on the theory of influential gender on the incidence of hypertension, men have Nyai is more at risk of experiencing penile systolic blood pressure levels compared a woman. But after menopause prevalence of hypertension in women rise. The presence of the hormone estrogen and Progesterone will increase the pressor response angiotensin II by involving the pathway RAAS. This line that makes da pressure one's spirit rises.Apart from that, essential/primary hypertension is not the cause is known with certainty, several mechanism that might contribute have been identified, but no one yet There is no clear theory of pathologysis the primary hypertension.by because it's gender unrelate with hypertension is also possible caused by factors others that affect the occurrence of hyper tension other than gender. Although bebe Previous research has shown that there is relationship between gender and gender hypertension.

The relationship between age and
Hypertension events

Based on table II it is known that there is a relationship between age and the incidence of hypertension in the community in the working area of the Sigumpar Health Center (p-value 0.0001 <0.05). The PR value is 2.532 which means that the proportion of those with hypertension the at risk age, 532 times more compared to age who are not at risk. Judging from the table, it is known that the incidence of hypertension is more at age at risk of 65.3% compared to ages that are not at risk of

25.8%. Age affects the occurrence of hypertension, with increasing age the risk of developing hypertension becomes greater. This event is caused by structural changes in the large blood vessels.

Increasing a person's age results in a decrease in physiological function and endurance that occurs due to the aging process which can make a person susceptible to diseases, one of which is hypertension. Generally hypertension occurs in people aged 40 years and over, because at that age there will be a loss of elasticity in the blood vessel walls, so that blood continues to pump without dilating blood vessels and resulting in increased blood pressure. Increasing age causes changes to the normal function of organs, such as the buildup of collagen in blood vessels. This can cause narrowing of the lumen of blood vessels.

Based on the research results of Amanda, et al. it is known that there is a relationship between age and the incidence of hypertension with a p value = 0.0001. Most cases of hypertension occur at the age of 55-64 years. Hypertension due to age cannot be prevented, because naturally a person's age will continue to increase. But even though it cannot be prevented, it can be controlled by adopting a healthy lifestyle, one of which is changing your diet.

The relationship between smoking habits and the incidence of hypertension

Based on table II, the incidence of hypertension occurred more in respondents who did not smoke (50.3%) than respondents who smoked (35.3%). The results of the statistical test with the chi-square obtained a p-value of 0.338, because the value of p = a (0.05) so that it shows that there is no relationship between smoking habits and the incidence of hypertension in the community in the working area of the Sigumpar Health Center.

Toxic chemicals such as nicotine and carbon monoxide that are inhaled through cigarettes will enter the blood circulation and damage the endothelial lining of the arteries, these substances result in the process of atherosclerosis and high blood pressure. Smoking also increases heart rate, so the oxygen demand of the heart muscles increases.

So if people with high blood pressure smoke, it will further increase the risk of damage to the arteries. Nicotine contained in cigarettes is very harmful to health besides increasing blood clotting in blood vessels, nicotine can also cause calcification of blood vessel walls.

This study shows that there is no relationship between smoking habits and the incidence of hypertension in the working area of the Sigumpar Health Center because the number of respondents who smoke is less than respondents who do not smoke. In addition, it is also because there are more female respondents than male respondents, where it is very rare for women to smoke. So that the number of respondents who smoke is small because more research respondents are female. These results are also supported by the results of other studies which show that there is no relationship between smoking and the incidence of hypertension in young adults with a p value = 0.303.

The results of research from Tirtasari (2019) also showed that there was no relationship between smoking and the incidence of hypertension (p-value 0.4547). This is because the samples taken are young, the effects of smoking accumulation will increase with age. So because the samples taken are still young, the effects may not yet appear, including hypertension.

The relationship between physical activity and the incidence of hypertension

Based on table II, the incidence of hypertension is more common in respondents who lack physical activity (53.8%) compared to respondents who have sufficient physical activity (49.4%). the results of the statistical test with the chi-square obtained a p-value of 0.973, because the p-value > a (0.05) thus indicating that there is no relationship between physical activity and the incidence of hypertension in the community in the working area of the Sigumpar Health Center. The results of this study show that there is no relationship, because most respondents have enough activity, because most of the people in the area are farmers, so the physical activity they do is sufficient.

Physical activity is defined as any bodily movement produced by contraction of the skeletal muscles that increases energy expenditure above the basal level. Examples of physical activity include walking, running, cycling, swimming, jumping rope, and housework. Activity theoretically affects a person's blood pressure, the more often a person does physical activity, the smaller the risk of developing hypertension.

Physical activity that is carried out regularly and appropriately with the appropriate frequency and length of time will help someone reduce their blood pressure. Sufficient activity can help strengthen the heart so it can pump blood better. Blood pressure is affected by physical activity, blood pressure will be higher during physical activity and will be lower when resting. Physical activity that is carried out regularly can reduce stiffness in the blood vessels and will increase the endurance of the heart and lungs so that it can reduce blood pressure.

According to Suiraoko, the lighter the work of the heart, the less pressure on the arteries, resulting in decreased blood pressure. Lack of physical activity can also increase the risk of being overweight which will cause the risk of hypertension to increase.

The relationship between fruit and vegetable consumption and the incidence of hypertension

Based on table II, the incidence of hypertension is more common in respondents who consume enough fruit and vegetables (54.2%) compared to respondents who consume less fruit and vegetables (48.7%). the results of the statistical test with chi square obtained a p-value of 0.589, because the p-value was > a (0.05) so that it showed that there was no relationship between fruit and vegetable consumption and the incidence of hypertension in the community in the working area of the Sigumpar Health Center.

The results of the relationship between consumption of fruits and vegetables and the incidence of hypertension in the community in the working area of the Sigimpar Health Center show no relationship, this is because of the total number of respondents who consume less fruits and vegetables, more do not suffer from hypertension than respondents who have hypertension. If seen in table II, the incidence of hypertension actually occurs more in respondents who consume enough fruits and vegetables compared to those who don't. This can also be caused by other factors that influence the onset of hypertension such as age or something else. Because hypertension is not only caused by one factor, there are many other factors that may influence the emergence of hypertension in respondents.

This is also consistent with the results of previous research which showed that the relationship between consumption of fruits and vegetables and hypertension was not significant (p-value 0.908), due to the tendency for respondents to consume less fruits and vegetables (84.7%)

One good source of food is fruit and vegetables. Consuming fruits and vegetables in adequate portions will be a source of antioxidant intake for the body. Consumption of food in quantity and quality that is not good will result in disruption of metabolic processes in the body which will cause disease. Therefore, in consuming food, you need to pay attention to its adequacy so that you get optimal function. Adequate consumption of fruits and vegetables plays a role in maintaining normal blood pressure, cholesterol and blood sugar levels. In addition, consuming enough fruit and vegetables will reduce the risk of constipation and obesity. The healthy living community movement (Germas) advises people to consume 2-3 servings of fruits and vegetables every day, especially local fruits and vegetables.

Vegetables contain essential vitamins and minerals, The potassium content in vegetables can lower blood pressure, this is because potassium acts as a diuretic agent reduces extracellular fluid volume and results in decreased blood pressure.

While fruit is a natural source of nutrition in the form of various types of vitamins and minerals which are the easiest to obtain and have very few side effects, therefore it is highly recommended to consume various types of fruit every day.

WHO recommends consuming 400 grams of vegetables and fruit, with 250 grams of vegetables and 150 grams of fruit. Meanwhile, for Indonesians, it is recommended to consume about 400-600 grams of fruit and vegetables per day, about 2/3 of the recommended amount is vegetables and the rest are fruits. The link between consumption of fruits and vegetables and blood pressure is explained because fruits and vegetables are high in potassium, magnesium, vitamin C, folic acid, flavonoids, and carotenoids which have the effect of lowering blood pressure.

CONCLUSION

Based on the results of the study, it was found that individual characteristics related to the incidence of hypertension were age (P value = 0.0001). Hypertension conditions tended to increase with age. While gender (P value = 0.732), smoking habits (P value = 0.338), physical activity (P value = 0.973) and fruit and vegetable consumption (P value = 0.589) showed no relationship with the incidence of hypertension.

It is expected that the public will carry out routine blood pressure checks as an effort to prevent hypertension and its complications, especially at the age of 40 years. Increasing age causes changes to the normal function of organs such as the buildup of collagen in blood vessels. This can cause narrowing of the lumen of blood vessels.

This research has some unavoidable limitations. The data used in this study is secondary data from the Sigumpar Health Center. In this case the researcher cannot control the quality of the data directly. This study does not cover all the factors associated with hypertension, so this study cannot describe how much influence these factors have on hypertension. This study uses a cross-sectional design that measures conditions at a certain time, so it is hoped that further research will be carried out using a research design that is better at showing the relationship between a health problem

REFERENCES

Data from the North Sumatra Provincial Health Office

Herlina, Aprilia Wardani R. Effectiveness of Herbal Tea Formulations to reduce risk. J Nursing. 2019

Irwan. Epidemiology of Non-Communicable Diseases. Yogyakarta : Deepublish ; 2016

Indonesia TRC. Infodation : Hypertension the Silent Killer. Pusdatin Ministry of Health. 2019

Ministry of Health of the Republic of Indonesia. Key Results of Basic Health Research

Sigumpar Health Center, Data on Hypertension Sufferers in the Sigumpar Health Center Work Area 2022

Setiawan H, Suhanda S, Rosliati E, Firmansyah A, Fitriani A. Health Promotion for Prevention of Early Hypertension. Community Service 2022.

Toba District Health Office. The number of hypertension incidents in Toba Regency in 2021

World Health Organization. Non-communicable disease country profiles 2018.