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Risk Factors for Primary Hypertension

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ABSTRACT

Hypertension is a deadly disease caused by high blood pressure causing damage to the kidneys, heart and brain. This study aims to determine the risk factors for hypertension related to family history, food, eating regularity and physical activity with the incidence of primary hypertension in the community in Sintang District. This research method is a quantitative study with a cross-sectional method design, the population in this study was 699 people with a total sample of 97 respondents. The sampling technique used was simple random sampling technique. The results of this study indicate that there is a significant relationship between family history and the incidence of hypertension, p-value of 0.001<(p-value=0.05) and OR of 4.800, there is a significant relationship between the type of food and the incidence of hypertension, p-value of 0.005<(p-value=0,05) and an OR of 4.680, there is a significant relationship between regular meals and the incidence of hypertension, p-value of 0.040<(p-value=0.05) and OR of 3.520, and there is a significant relationship between physical activity and the incidence of hypertension, p-value of 0.003<(p-value=0.05) and OR of 4.308. In conclusion, family history, type of food, regular food, and physical activity are related to the incidence of hypertension, therefore it is recommended that people who have a history of hypertension sufferers can regulate their diet and do physical activity regularly.

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INTRODUCTION

Hypertension is a non-communicable disease that is more often found in the elderly age group. The elderly are the age group with the highest prevalence of hypertension. Hypertension is easily encountered in the elderly because in the elderly there are several physiological changes, for example decreased blood vessel elasticity, reduced baroreceptor response, and increased peripheral vascular resistance. The prevalence of hypertension in elderly people aged 55-63 years is 45.9%; aged 65-74 years 57.6%; and age 75 years 63.8% (Minsitry of Health RI, 2018).

Hypertension sufferers are at risk of sudden death, because they kill in secret. hypertension sufferers without any early symptoms as a warning to the victim. Even if they appear, these symptoms are often considered normal disorders, so that the victim realizes too late that the disease is coming (Pitriani et al., 2017). Hypertension can be the main cause of heart and blood vessel disease. An increase in blood pressure that is not detected early and does not receive adequate immediate treatment, and lasts for a long time (persistent) can cause damage to the kidneys (kidney failure), heart (coronary heart disease), and brain (stroke). Therefore, efforts are needed to analyze the risk of hypertension so that the incidence of hypertension can be controlled. One factor that increases the risk of hypertension is the ABO blood type (Murni, 2019).

Hypertension contributes to around 45% of deaths due to heart disease and 51% due to stroke. An increase in blood pressure where the blood vessels experience a continuous increase in pressure results in hypertension in a person (Widyastuti & Utami, 2019). The prevalence of hypertension continues to increase every year, based on WHO data showing that around the world, around 972 million people or 26.4% of the world's population suffer from hypertension, with a ratio of 26.6% of men and 26.1% of women. This figure is likely to increase to 29.2% in 2025. Of the 972 million people with hypertension, 333

are in developed countries and the remaining 639 are in developing countries, including Indonesia. Hypertension kills almost 8 million people every year, almost 1.5 million people in Southeast Asia suffer from hypertension (Salman, 2014).

Hypertension is abnormal high blood pressure, in general hypertension occurs when the blood pressure 140 mmHg systolic or 90 mmHg diastolic. Blood pressure between 100/70mm Hg-140/80mmHg is common in normal adults, blood pressure like this can be experienced at any time. Primary hypertension reaches ±90% and the other 10% is caused by secondary hypertension of the total hypertensive patients. Only 50% of secondary hypertension sufferers can find out the cause and of this group only a few percent can have their disorder corrected. Therefore, efforts to treat primary hypertension receive more priority (Tantri, 2019). Hypertension remains a problem due to several reasons, including the large number of hypertensive patients who have not received treatment or who have been treated but whose blood pressure has not reached the target, as well as the presence of comorbidities or complications that can increase morbidity and mortality (Yeni et al., 2014).

The prevalence of hypertension in West Kalimantan in 2018 was 44,134 cases with a percentage of 34.9%. According to data from the West Kalimantan Health Service, in 2018 the number of hypertension cases in Sintang Regency was 1,470 cases. In 2018, based on data at the Dara Juanti Public Health Center, there were 189 cases of primary hypertension and 47 cases of secondary hypertension (Health Office of Sintang, 2020). In 2019, based on data from the Dara Juanti Public Health Center, there was an increase in cases of primary hypertension by 270 and secondary hypertension by 69 cases (Yeni et al., 2014). In 2020, based on data from the Dara Juanti Public Health Center in January-October, there was an increase in cases of primary hypertension by 498 and secondary hypertension by 171 cases. The highest number of hypertension cases in 2020 was in Ulak Jaya Village with 87 cases (Health Office of Sintang, 2020).

Because cases of hypertension are still high, researchers need to determine the risk factors for hypertension related to family history, food, eating regularity and physical activity with the incidence of primary hypertension in the community in Ulak Jaya Village, Dara Juanti Public Health Center Working Area, Sintang District, Sintang Regency.

METHOD

This research is a quantitative study with a cross-sectional method design, namely researchers who study the relationship between risk factors and their impacts, using an observational approach in collecting data simultaneously. Correlating independent variables consisting of family history, food, eating regularity, and physical activity with the incidence of hypertension. Primary data collected in this study used a questionnaire using the questionnaire method as a data collection tool which includes individual factors (incidence of hypertension, age, and family history) and determinants (family history, food, regular eating, and physical activity) with the incidence of hypertension in Ulak Jaya, Dara Juanti Public Health Center Working Area, Sintang Regency.

Data collection was carried out from house to house involving 5 (five) enumerators who visited the respondent's house to deliver the questionnaire to the respondent, then the respondent was asked to fill out the questionnaire. A large number of questionnaire questions will require respondents to return them within 3 to 7 days to the researcher.

This research is a quantitative research with a cross sectional method design, namely the researcher studies the correlation between risk factors and effects, using an observational approach in collecting data simultaneously. The research location is in Ulak Jaya Village, Dara Juanti Public Health Center Working Area, Sintang District, Sintang Regency. The total population in this study was 699 people with a sample size of 87 respondents. The sampling technique uses a simple random sampling technique, so that each population has the same opportunity to become a research sample.

Bivariate analysis was carried out on two variables that were thought to be related or correlated. This study used bivariate analysis to see the relationship between the independent variables, namely family history, type of food, regular meals, and physical activity, with the dependent variable, namely the incidence of hypertension. Analysis between independent and dependent variables is presented in tabular form to determine the relationship between independent variables and dependent variables using statistical software. The results of the chi square test calculation, if the p value is smaller than the alpha value (0.05), then there is a significant relationship between the variables family history, type of food, regular meals, and physical activity with efforts to prevent the

incidence of hypertension. This research is based on ethical clearance Registration Number: KEPK/UMP/19/IX//2023.

RESULTS

Based on table 1, the incidence of hypertension in Ulak Jaya Village, Dara Juanti Public Health Center Working Area, Sintang District, the incidence of hypertension was 50 respondents (57.5%), most respondents with age >40 years old (51.7%) and no history hypertension in family (51.7%).

Table 1. Hypertension incidence

Frequency	n	%
Normal	37	42.5
Hypertension	50	57.5
Age < 40 Year Old	42	48.3
Age > 40 Year Old	45	51.7
Family history	42	48.3
No history family	45	51.7

Table 2. The relationship between family history and the incident of hypertension

Variable		Blood presure				Total		OR CI 95%	p-value
		Hypertension		Normal					
		n	%	n	%	n	%		
Family History	There were	27	73	18	36	37	100	4,800	0.001
	There weren't any	10	27	32	64	50	100	(1.899-12.133)	
Food	Not enough	16	43.2	7	14	23	100	4.680	0.005
	Sufficient	21	56.8	43	86	64	100	(1.671-13.111)	
Eat regularly	Irregular	12	32.4	6	12	18	100	3.520	0.040
	Regular	25	67.6	44	88	69	100	(1.176-10.533)	
Physical activity	Did not	24	64.9	15	30	39	100	4.308	0.003
	Did	13	35.1	35	70	46	100	(1.740-10.662)	

Based on table 2, it can be explained that there were 27 respondents (73%) in families who had a history of hypertension, while there were 10 respondents (27%) in families who did not have a history of hypertension. The statistical test results obtained a p-value of 0.001 <(p-value=0.05) which shows that there is a significant relationship between families who have a history of hypertension and the incidence of hypertension. Further analysis explains that the OR value=4.800, meaning that someone who has a family history of hypertension has a 4.8 times chance of suffering from hypertension compared to someone who does not have a family history of hypertension.

Sufficient types of food were associated with the incidence of hypertension in 21 respondents (56.8%), while insufficient types of food were associated with the incidence of hypertension in 16 respondents (43.2%). The statistical test results obtained a p value of 0.005 < (p-value=0.05) which shows that there is a significant relationship between the type of food and the incidence of hypertension. Further analysis explains that the OR value=4.680, meaning that types of food that have sufficient nutritional levels have a 4.680 times chance of suffering from hypertension compared to those that do not have sufficient nutritional levels.

Regular food is associated with the incidence of hypertension in 25 respondents (67%), while irregular food is associated with the incidence of hypertension in 12 respondents (32%). The statistical test results obtained a p value of 0.040 <(p-value=0.05) which shows that there is a significant relationship between regular food and the incidence of hypertension. Further analysis explains that the OR value=3.520, meaning that someone who eats regularly has a chance of suffering from hypertension 3.520 times compared to someone who does not eat regularly.

Based on table 2, it can be explained that not doing physical activity was associated with the incidence of hypertension by 24 respondents (64.9%), while doing physical activity was associated with the incidence of hypertension by 13 respondents (35.1%). The statistical test results obtained a p value of 0.003 < (p-value=0.05) which shows that there is a significant relationship between physical activity and those who do not do physical activity. Further analysis explains that the OR value=4.308, meaning that someone who does not do physical activity has a chance of suffering from hypertension 4.308 times compared to someone who does physical activity.

DISCUSSION

Family history of primary hypertension

The results of this study show that people who have a history of hypertension can pass it on to their children with the same genetics, between parents and children. The results of the analysis showed that the majority of respondents had a family history experienced primary hypertension, The risk of experiencing primary hypertension for respondents who have a family history is 6.5 times greater than for those who have no family history. Based on statistical data, it is proven that a person has a greater chance of getting hypertension if their parents suffer from hypertension (Tantri, 2019). Genetically and behaviorally, a person is similar to his parents and the generations that come from his descendants, including the risk of suffering from hypertension.

Family history is one of the factors causing uncontrollable hypertension. Table 4 shows the results of the analysis of the relationship between family history and the incidence of hypertension. The statistical test results obtained a value of p=1,000 which shows that there is no relationship between family history and the incidence of hypertension in patients at Robert Wolter Mongisidi Hospital (Tumanduk et al., 2019)

Food adequacy with the incident of primary hypertension

There is a 3.51 times risk of experiencing hypertension in respondents who have higher nutritional status compared to respondents who have normal nutritional status. Meanwhile, the relationship between nutritional intake showed that intake of sodium, potassium, calcium, fat and consumption of fruit and vegetables did not show a significant relationship with hypertension in respondents. However, there is a tendency for hypertensive respondents with low intakes of potassium, calcium and fruit and vegetable consumption to be greater in proportion compared to hypertensive respondents whose intakes are adequate (Angesti et al., 2018). The results of this study show that types of food that have sufficient nutritional content including protein, fat, carbohydrates, vitamins and minerals that are permanent without being accompanied by physical activity in accordance with the amount of calorie intake will be the cause of someone suffering from hypertension, especially foods that contain fat and protein.

Someone consumes more fat and protein without paying attention to fiber. Being overweight increases the risk of cardiovascular disease for several reasons. The greater the body mass, the more blood is needed to supply oxygen and food to body tissues. This means that the volume of blood circulating through the blood vessels increases, putting greater pressure on the artery walls (Yeni et al., 2014). The foods recommended in DASH are rich in magnesium, potassium, calcium and fiber which are associated with lower blood pressure. The daily serving of vegetables and fruit recommended by DASH reaches 4-5 servings. Vegetables and fruit contain vitamins, minerals and fiber (Amalia & Triyono, 2018).

Eating regularly with the incident of primary hypertension

The results of this study show that people who eat regularly with the right time schedule, type of food and the same amount of food will suffer from hypertension, meanwhile this food intake must be used as a source of energy in carrying out daily activities with varying durations according to with the food intake received. This study only obtained consumption of caffeinated drinks found to be at risk of hypertension. This may be due to the quality of consumption pattern data in Riskesdas 2018 which tends to be subjective because it has not been measured quantitatively (only measured through consumption frequency) (Ministry of Health RI, 2018). On the other hand, the influence of diet may be related to obesity (Rahajeng & Tuminah, 2009) This situation may be related to food intake. Generally, the less well-off group has a higher salt intake in their diet compared to the well-off (Sirait, 2012).

Physical activity with the incident of primary hypertension

Based on research by Rahajeng & Tuminah (2009) show, that people who do not doing regular physical activity can cause hypertension. Doing regular activity (aerobic physical activity for 30-45 minutes/day) is known to be very effective in reducing the relative risk of hypertension by 19% to 30%.

In respondents with irregular exercise habits, the incidence of primary hypertension was 73%, while in respondents with regular exercise habits the proportion of primary hypertension was 29.2%. The risk of experiencing primary

hypertension for respondents who have irregular exercise habits is 6.557 times greater than those who have regular exercise habits (Tantri, 2019). Hypertension sufferers are advised to do physical exercise or exercise regularly. Exercising regularly is one of the most important parts of managing hypertension because regular exercise can reduce peripheral resistance which will lower blood pressure (Tantri, 2019). Exercise, including regular physical activity, can help burn calories from the food consumed, including fat in a person's body which can be used as a source of energy and improve blood flow in a person's body.

In the next Riskesdas (2018) which will be carried out by Ministry of Health RI, measurements of food consumption and physical activity variables need to be carried out using more valid methods, for example through individual 24-hour diet recalls for consumption and use of pedometers for physical activity. In this way the information obtained is more accurate. Research conducted by Butler (2010) stated that although hypertension can be inherited, if the lifestyle is maintained properly from a young age and patient compliance is good, the patient's blood pressure can be controlled well so that the patient can carry out normal activities (Rahajeng & Tuminah, 2009). The research limitations in the is the small number of samples studied, there are several other variables that have not been studied, including foods that contain sodium.

CONCLUSION

This research can be concluded that family history, type of food, regular meals, and physical activity are related to the incidence of hypertension, therefore it is recommended that people who have a history of hypertension sufferers can regulate the type of food consumed, consume food according to daily calorie needs, and do regular physical activity for 30 minutes every day or one kilometer of walking.

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