DESCRIPTION OF THE INCIDENT HYPERTENSION AND RISK FACTORS THAT CONTRIBUTE TO THE OCCURRENCE OF HYPERTENSION IN COASTAL SIAK RIVER

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Abstract

Hypertension is a serious health problem and one of the most important causes of premature death worlwide. Hypertension incidence rates increased along with accompanying risk factors. This study aims to know the description of the incidence of hypertension and the risk factors that contribute to the incidence of hypertension in the coastal Siak River. The methode used is descriptive correlational cross-sectional approach. The study was conducted in the Puskesmas Rumbai Pesisir, using simple random sampling technique, obtained a sample of 100 respondents. Measuring instruments used in the form of a questionnaire. Data were analyzed by univariate statistical test frequency distribution, bivariate data were analyzed with Pearson's Product Moment Correlation. The results showed that there is significant relationship between gender (p value 0.0 with OR 2.12 in men rather than women), body mass index (p value 0.04 with OR 0.64 in obesity person), consumption of foods high in salt (p value 0.026 with OR 3.03), fried food consumption (p value 0.08 with OR 3.36) and lack of exercise (p value 0.05 with OR 0.38) with the incidence of hypertension. It can be concluded that there are risk factors can be modified in hypertension and can not be modified, that affect the incidence of hypertension. This study expected can be a foundation management of hypertension disease in the community.

Keywords : Coastal Siak River, Hypertension, Risk Factors

BACKGROUND

Hypertension became one of the most important health problems throughout the world because of the high prevalence. Based on the WHO report in 2010 noted that the prevalence of hypertension of 24.4 to 30.3% of the adult population in the United States (AHA, 2011). WHO in 2011 also showed hypertension is a cause 8 million deaths per year in the world and 1.5 million deaths per year in the south east Asian region (WHO, 2011). The health profile based on Indonesia in 2004, hypertension is the third highest disease in health services. In Riau Province, hypertension ranked highest in the number of cases as many as 1327 cases (Depkes RI, 2004).

The incidence of hypertension increases with the presence of risk factors that accompany it. The triggering factors of hypertension divided into uncontrollable factors such as age, gender, and family history, and factors that can be controlled such as food consumption that contain lots

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of sodium, high-fat, smoking, obesity, and physical inactivity (Mansjoer, 2001).

Geographic location is also one risk factor hypertension. Bustan (1997) showed that people living in coastal areas are at higher risk of hypertension compared to people in mountainous areas.

Rumbai Pesisir is located in the coastal Siak river. Customs of the people in the region to consume foods high in salt and fat can increase the incidence of hipertensi. As well as other factors that can increase the risk of hypertension in this community such as smoking behavior. Before perform management of hypertension in coastal communities Siak river, the early stages to do is identification risk factors that contribute to the incidence of hypertension.

The purpose of this study to get a general descriptive of the incidence of hypertension and the risk factors that contribute to the incidence of hypertension in the coastal Siak rivers.

METHODS

The research is a descriptive correlation with a cross-sectional. In this study, the design used aimed to determine the risk factors that contribute to the incidence of hypertension in communities in coastal Siak River.

Population in this study is Pandak Meranti village residents. Based on data

from Pekanbaru Health Office, people living around the coastal Siak river (Rumbai Pesisir) as much as 13.714. Samples used in this study as many as 100 people. Sampling technique by simple random sampling.

The technique of collecting data using a questionnaire. Questionnaires have been made to test the validity by using a test of content validity, is to consult an expert on research instruments that have been made, then performed using the test validity construct "Spearman Rank Correlation" aim to assess the correlation between the questions in a questionnaire. The question is declared valid if the p value > 0,648. Reliability test conducted to measure is reliable or unreliable to be used of collecting data. For test the reliability of the instrument used formula KR 21 (Kuder Richardson). Instrument otherwise reliable if the calculation results obtained reliability coefficients > 0.357.

Demographic data of respondents analyzed by univariate and displayed in distribution frekuency. Relationship between the risk factors on the incidence of hypertension, analyzed using Pearson's Product Moment Correlation.

RESULTS.

Univariate Analysis.

Table 1: Distribution of Respondents by Group Sex.

No	Sex	Frequency Distribution	
		Frequency (n)	Percentage
1	Male	54	54.0
2	Female	46	46.0
	Total	100	100

From the table it appears that the majority of the sex of the respondents were male as much as 54%.

Table 2: Distribution of Respondents by Group Body Mass Index.

No	Body Mass Index	Frequency Distribution	
		Frequency (n)	Percentage
1	Obesity	62	62.0
2	Normal	38	38.0
Total		100	100

From the table it appears that the majority of respondents based on the Body Mass Index (BMI) of 62% are obese.

Table 3: Distribution of Respondents by Group Consumption of Salty Foods.

No	Consumption of Salty Foods	Frequency Distribution	
		Frequency (n)	Percentage
1	Yes	72	72.0
2	No	28	28.0
Total		100	100

From the table it appears that the majority of respondents consume salty foods is as much as 72%.

Table 4: Distribution of Respondents According to Fried Food Consumption Group.

No	Fried Food Consumption	Frequency Distribution	
		Frequency (n)	Percentage
1	Yes	60	60.0
2	No	40	40.0
Total		100	100

From the table it appears that the majority of respondents consume fried food as much as 60%.

Table 5: Distribution of Respondents by Group Exercise Habits.

No	Exercise Habits	Frequency Distribution	
		Frequency (n)	Percentage
1	Yes	40	40.0
2	No	60	60.0
	Total	100	100

From the table it appears that the majority of respondents did not have exercise habits is as much as 60%.

Bivariate Analysis.

Table 6: Effects of Gender With Incident Hypertension.

Sex	Hypertension Incident				Total		OR 95% CI	P value
	Hiper-tension		Not Hiper-tension					
	N	%	N	%	N	%		
Male	38	70,4	16	29,6	54	100	2,12 (0,96 – 4,95)	0,097
Female	24	52,0	22	47,8	46	100		
Total	62	62	38	38	100	100		

The results of the relationship between the sexes with the incidence of hypertension was found that as many as 38 (70.4%) of 54 men suffering from hypertension and respondents with female sex as much as 24 (52%) of the 46 people who have hypertension. Statistical test results p = 0.097, it can be concluded that there is difference in the proportion of incident hypertension among male respondents and female (there is significant relationship

between gender and the incidence of hypertension). Analysis of the value of OR = 2.12, meaning that the men had 2.12 times the odds of suffering from hypertension than women.

Table 7: Effect of Body Mass Index (BMI) With Incident Hypertension.

Body Mass Index	Hypertension Incident				Total		OR 95% CI	P value
	Hyper-tension		Not Hyper-tension					
	N	%	N	%	N	%		
Obesity	36	58,1	26	41,9	62	100	0,64 (0,28 – 1,5)	0,41
Normal	26	68,4	12	31,6	38	100		
Total	62	62	38	38	100	100		

The results of the relationship between body mass index with incidence of hypertension was found that there were 36 (58.1%) of the 62 respondents who are obese suffer from hypertension. Respondents with normal body mass index were 26 (68.4%) of the 38 people who have hypertension. Statistical test results p = 0.041, it can be concluded that there is difference in the proportion of incident hypertension among obese respondents with a normal body mass index (there is significant relationship between body mass index with incidence of hypertension). Analysis of the value of OR = 0.64, meaning that respondents who were obese had 0.64 times the odds of suffering from hypertension compared to respondents who had normal BMI.

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Table 8: Effect of Food Consumption High Salt With Incident Hypertension.

High Salt	Hypertension Incident				Total		OR 95% CI	P value
	Hyper-tension		Not Hyper-Tension					
	n	%	N	%	N	%		
Yes	50	69,4	22	30,6	72	100	3,03 (1,23 – 7,46)	0,026
No	12	42,9	16	57,1	28	100		
Total	62	62	38	38	100	100		

The results of the relationship between the consumption of foods high in salt with the incidence of hypertension was found that there were 50 (69.4%) of the 72 respondents who consumed foods high in salt suffer from hypertension. Respondents who did not consume foods high in salt as much as 12 (42.9%) of 28 had hypertension. Statistical test results p = 0.026, it can be concluded that there is difference in the proportion of incident hypertension among respondents who consumed foods with a high salt with respondents who did not consumed foods with a high salt (there is significant relationship between the consumption of foods high in salt with the incidence of hypertension). Analysis of the value of OR = 3.03, meaning that respondents who consume foods with a high salt has 3.03 times the chance of suffering from hypertension than respondents who do not eat foods with a high salt.

Table 9: Effect of Consumption of Fried Food With Incident Hypertension.

Fried Food Con-sumption	Hypertension Incident				Total		OR 95% CI	P value
	Hyper-tension		Not Hyper-Tension					
	N	%	N	%	N	%		
Yes	44	73,3	16	26,7	60	100	3,36 (1,44 – 7,83)	0,08
No	18	45	22	55	40	100		
Total	62	62	38	38	100	100		

The results of the relationship between consumption of fried foods with the incidence of hypertension was found that there were 44 (73.3%) of the 60 respondents who consume fried foods suffer from hypertension. Respondents who did not consume fried foods as much as 18 (45%) of 40 had hypertension. Statistical test results p = 0.08, it can be concluded that there is difference in the proportion of incident hypertension among respondents who consume fried foods with respondents who did not consumed fried foods (there is significant association between consumption of fried foods with the incidence of hypertension). Analysis of the value of OR = 3.36, meaning that respondents who consume fried food has 3.36 times the chance of suffering from hypertension than respondents who did not consume fried foods.

Table 10: Effect of Exercise Habits Genesis Hypertension.

Exercise Habits	Hypertension Incident				Total		OR 95% CI	P value
	Hyper-tension		Not Hyper-tension					
	N	%	N	%	N	%		
No	32	53,3	28	46,7	60	100	0,38 (0,16 – 0,92)	0,05
Yes	30	75	10	15	40	100		
Total								

The results of the relationship between exercise habits to the incidence of hypertension was found that there were 32 (53.3%) of the 60 respondents who did not have exercise habits suffer from hypertension and have exercise habits among respondents 30 (75%) of 40 had hypertension. Statistical test results p = 0.05, it can be concluded there is difference in the proportion of incident hypertension among respondents who exercise habits that do not have the habit of exercising (there is significant relationship between exercise habits to the incidence of hypertension). Analysis of the value of OR = 0.38, meaning that respondents who do not have the habits of exercising has 0.38 times the chance of suffering from hypertension than respondents who have a habits of exercising.

DISCUSSION

Brown (2007), premenopausal women are protected by the hormone estrogen, a role in increasing the levels of high density lipoprotein (HDL). High levels of HDL cholesterol are protective factor in preventing atherosclerosis. The protective effect of estrogen is considered as an explanation for the existence of immunity at the age of premenopausal women. In premenopausal women begin to lose little by little during the estrogen protects blood vessels from damage. This process continues as the estrogen hormone changes in quantity according to age naturally women, who generally begin to occur in women aged 45-55 years.

Dhiyaningtiyas and Hendarti (2006), who said that the prevalence of obesity has doubled since 1980 and is currently 12% of the world population are obese. Obesity is one of the causes of diabetes, cardiovascular problems and cancer. Person with a BMI> 25.8 can be 2.9 times the risk of having high blood pressure compared with those with a BMI <25.8.

The results of the study by Raihan (2014), there is a statistically significant relationship between salt intake patterns by cause of primary hypertension in community health centers in the region of Rumbai Pesisir. Lovastatin (2006) that the pattern of high salt intake is a risk factor for hypertension.

According Marliani (2007), foods high in salt content is one risk factor for hypertension. Excess natrium consumption causes the natrium concentration in the extracellular fluid increases. To make normal, intracellular fluid is pulled out, so

that extracellular fluid volume increases. Increasing the volume of the extracellular fluid causes increased blood volume, so the impact to the onset of hypertension.

Excessive natrium also will clot in the blood vessel walls and scrape the blood vessels so flaky. Impurities due to flaking can clog blood vessels. Gag blood vessels resulting in heart must pump blood hard (Widharto, 2007).

According Widyanigrum (2012), that there is a significant correlation between the consumption of fried foods with the incidence of hypertension (p value 0.01). It is described as the conveyance due to lipoprotein lipids circulating in the body and taken into muscle cells, fat and other cells. So also in triglycerides in the blood stream is broken down into glycerol and free fatty acids by the enzyme lipoprotein lipase which is on capillary endothelial cells.

There are a lot of cholesterol in low density lipoprotein (LDL) accumulates in the walls of blood vessels and form plaque. Plaques will be mixed with protein and is covered by muscle cells and calcium that eventually develop into atherosclerosis. Coronary blood vessels in addition to suffering from atherosclerosis becomes inelastic, also narrowed so that the resistance to blood flow in the coronary arteries also increased, which will lead to hypertension (Lovastatin, 2006).

Lack of exercise will increase the likelihood of obesity and increase salt intake also will facilitate the emergence of hypertension due to deposits of plaque or cholesterol in the blood vessel walls (Soeharto, 2004). People who are less active tend to have a higher heart rate so that the heart muscle has to work harder during contraction. In addition, lack of physical activity can lead to vasoconstriction of blood vessels and result in increased cardiac work, and there was high blood pressure. This is what can lead to hypertension (Yulianti & Sitanggang, 2006).

CONCLUSION

The results showed that male respondents more than 54% of the female respondents, respondents who are obese by 62%, respondents who consume high amounts of salt by 72%, respondents who consume fried foods by 60% and respondents who did exercise habits of 60%.

There is a significant relationship between gender, obesity, consumption of foods high in salt, fried food consumption and exercise habits to the incidence of hypertension.

It can be concluded that there are risk factors can be modified in hypertension and can not be modified, that affect the incidence of hypertension. This study

expected can be a foundation management of hypertension disease in the community.

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