Family History as a Risk Factor for Hypertension in the Coastal Area

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Abstract: Hypertension is a serious medical condition and is a leading cause of premature death worldwide which significantly increases the risk of heart, brain, kidney and other diseases. However, not all hypertension sufferers are aware of the disease they suffer from and it is only discovered after complications occur. Therefore, hypertension must be prevented and controlled. Prevention and control of hypertension aims to prevent and reduce the probability of morbidity, complications and death. Hypertension can be prevented by controlling risk factors. This study aims to analyze the relationship between family history and the incidence of hypertension in the coastal communities of Tarakan City. This research is a quantitative study with a cross sectional study design. The sample in the research was the community in the working area of the Pantai Amal Health Center and met the sample criteria obtained using a purposive sampling technique. The data obtained was processed bivariately with the chi-square test. The results of the study showed a p value = 0.013, which means there is a relationship between family history and the incidence of hypertension. The conclusion of this study is that family history can be a risk factor for hypertension in the coastal area of Tarakan City. Therefore, it is hoped that health promotion efforts will take the form of scheduled education on hypertension risk factors and preventive efforts in the form of early detection so that people can prevent or control hypertension so that complications are avoided.
Keywords : Famili history, hypertension, risk factor

BACKGROUND

Hypertension is one of the most common diseases suffered by people. Hypertension is the leading cause of death in the world each year[1]. Hypertension can significantly increase the risk of heart disease, stroke, kidney failure, and others[2]. Hypertension was the cause of death of over half a million people in the United States in 2019[3].

WHO estimates the international incidence of hypertension to be 22% of the world's total population. Of this figure, only one-fifth control their hypertension. The region with the highest incidence of hypertension is Africa at 27%, while Southeast Asia is the third highest, with an incidence of 25% of the total population[4]. the 2018 Riskesdas results show a national hypertension incidence rate of 34.11%. This incidence rate is higher than the 2013 incidence rate of 25.8%[5,6]. In 2018, the incidence of hypertension in North Kalimantan was the eleventh highest at 33.02%, while in Tarakan City, it was 30.21% of the total population[7,8].

Uncontrolled hypertension will be the main cause of other diseases, such as heart disease, stroke, and kidney failure[9]. In Indonesia, it is estimated that only one-third of hypertension cases are diagnosed[7]. Therefore, hypertension must be prevented and controlled.

Prevention and control of hypertension aims to reduce the risk of morbidity, complications, and mortality. Pharmacological and non-pharmacological approaches are an effort that is made. Promotive and preventive efforts are part of the non-pharmacological approach. These efforts increase public awareness of early detection[10]. Controlling risky behaviors such as smoking, unhealthy diet, obesity, lack of physical activity, alcohol consumption, and stress are efforts to prevent hypertension[1].

Several studies have concluded a significant relationship between non-communicable diseases and socio-demographic factors, behavior, physical condition, and history of other diseases[10]. A literature review aimed at assessing the prevalence and risk factors of hypertension concluded that female gender, adults and the elderly, low education, disease, genetic and environmental factors (obesity, high sodium intake, sedentary lifestyle, stress, alcohol consumption, and smoking) are risk factors for hypertension [11]. Another study aimed at assessing the prevalence of hypertension and associated factors found that the risk of hypertension was higher in males, older age groups, those married, those upper socioeconomic class, those not in school, and those retired. In addition, tobacco and alcohol use, overweight, and obesity were also associated with the incidence of hypertension [12]. Another literature review found that age, gender, obesity, genetics, stress, activity, and lifestyle factors can influence the incidence of hypertension [13]. One of the risk factors for hypertension is genetic factors or family history.

Therefore, it is hoped that people with hypertension can prevent and control it by knowing the risk factors for hypertension. This can be done by modifying the lifestyle so that it can avoid complications that can occur [14].

METHODS

This research is quantitative research with a cross-sectional study design. The population in this study was the community in the working area of Pantai Amal Health Center, Tarakan City. The sample in this study amounted to 120 people who met the inclusion and exclusion criteria determined by the purposive sampling technique. The research was conducted in the working area of Pantai Amal Health Center. Data collection was carried out in August-October 2022. The instrument in data collection was a questionnaire sheet containing demographic data consisting of name, age, education, gender, and religion, as well as the presence or absence of family suffering from hypertension. The data obtained were processed using the chi-square test.

RESULT

Table 1. Relationship between Family History and Hypertension

Family History	Hypertension				n	%	*p value*
	Yes		No				
	n	%	n	%			
Yes	46	76,7	22	36,7	68	56,7	0,013
None	14	23,3	38	63,3	52	43,3	

Table 1 shows the results of the chi-square test between family history of hypertension and the incidence of hypertension. The results show that there is a significant relationship between a family history of hypertension and the incidence of hypertension, with a p-value of 0.013.

DISCUSSION

The results showed that most respondents were in the category of having a family history of hypertension, namely 56.7%. Then, the results of the analysis test using the chi-square test between family history of hypertension and the incidence of hypertension showed that there was a significant relationship between family history and the incidence of hypertension with a p-value of 0.013. So, a family history of hypertension is a risk factor for the incidence of hypertension in the coastal area of Tarakan City.

The results of this study are in line with research conducted by Musfirah and Masriadi, which shows that family history is a risk factor for hypertension, with an OR value = 5.5, namely the group that has a family history is 5.5 times at risk compared to the group that has no family history so that the chance of

suffering from hypertension is greater [15]. The same results were also shown by the research of Erna Krisnawati Sarumaha and Vivi Eulis Diana, who obtained the Odd Ratio (OR) value = 2.376, meaning that respondents who have genetics have a chance of 2.376 times the risk of suffering from hypertension compared to not having genetics [16].

A similar study conducted in the coastal area of Tanjung Tiram showed that the risk factor most associated with the incidence of hypertension was family history (p-value 0.000; OR 11.387) [17]. One study conducted in coastal India also identified a family history of hypertension as having a significant correlation with hypertension [18].

Genetics is one of the factors that have a considerable contribution to the occurrence of hypertension. In fact, one study showed that 9-10 people suffering from hypertension were proven to be hereditary. However, genetic factors will have no effect if not supported by environmental conditions. So genetic factors will become a threat if supported by various other factors such as lifestyle, stress levels, diet, and lack of physical activity [19]

Several studies have suggested that many genes can affect blood pressure, including genes that play a role in renal sodium homeostasis and genes that regulate steroid metabolism and increase aldosterone production, increasing sodium retention in the kidneys. These genes affect the Na+-K+ pump in the renal tubules, thereby increasing sodium and water retention in the kidneys. Increased sodium reabsorption in the kidneys increases the volume of plasma and extracellular fluid. Thus, the extracellular volume increases and causes an increase in venous return blood flow to the heart. This results in an increase in cardiac output and a subsequent rise in arterial pressure [20,21].

CONCLUSION

This study concluded that family history is related and is one of the risk factors for the incidence of hypertension in coastal areas of Tarakan City. Therefore, it is hoped that health promotion efforts in the form of scheduled hypertension counseling and preventive efforts in the form of early detection so that people can prevent or control hypertension to avoid complications.

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