DETERMINAN HIPERTENSI PADA MASYARAKAT MISKIN KOTA BANDA ACEH

DETERMINANT OF HYPERTENSION IN POOR SOCIETIES IN KOTA BANDA ACEH

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Abstrak

Hipertensi merupakan faktor risiko utama untuk penyakit kardiovaskular dimana prevalensinya secara umum lebih tinggi pada wilayah miskin dibandingkan dengan wilayah kaya. Penelitian ini bertujuan untuk membuktikan bahwa hipertensi merupakan masalah kesehatan utama pada penduduk miskin usia produktif dan usia tua di Kota Banda Aceh. Penelitian ini dilakukan karena data tentang hipertensi pada masyarakat miskin di Kota Banda Aceh belum tersedia. Penelitian yang telah dilakukan dari bulan April sampai November 2012 merupakan jenis penelitian deskriptif analitik dengan desain potong lintang dan teknik penarikan sampel secara purposive di daerah perkotaan Gampong Ceurih, Kecamatan Ulee Kareng, Kota Banda Aceh, Provinsi Aceh. Analisis bivariat dan multivariat digunakan untuk meneliti hubungan antara beberapa karakteristik individu dengan hipertensi. Analisis statistik secara bivariat memperlihatkan bahwa kelompok umur dan latar belakang pendidikan signifikan terhadap kejadian hipertensi stage-1. Hasil analisis multivariat diperoleh karakteristik individu orang miskin yang menentukan hipertensi secara signifikan berturut-turut adalah kelompok umur 55-90 tahun (OR = 58,15 p = 0,000; 95% CI 7,09-476,7), umur 43-54 tahun (OR = 11,07 p = 0,028; 95% CI 1,30-94,0) dan umur 31-42 tahun (OR = 8,75 p = 0,044;95 % CI 1,05-72,6). Hasil penelitian menunjukkan bahwa hipertensi merupakan masalah kesehatan umum masyarakat miskin di populasi Kota Banda Aceh. Intervensi program pemerintah dibutuhkan dalam upaya pencegahan hipertensi seperti penyuluhan makanan sehat dan kemudahan akses untuk memperolehnya, aktifitas fisik yang adekuat serta mengontrol tekanan darah secara rutin.

Kata Kunci : Aceh, hipertensi, masalah kesehatan, isu kemiskinan

Abstract

Hypertension is still a health problem in the world today and convincingly becomes a major risk factor for cardiovascular disease. The occurrence of hypertension is commonly lower in high-income than in low-income populations. This paper is about to prove that hypertension has been becoming a major health problem among the productive-aged and elderly in Kota Banda Aceh. Data on hypertension for poor societies in Kota Banda Aceh has not available yet. This analytic descriptive study has been conducted from April to November 2012 with cross-sectional design and purposive-sampling technique in urban area of Gampong Ceurih, Ulee Kareng Subdistrict, Banda Aceh, Aceh Province. Bivariate and multivariate analyses were used to determine the correlation among several individual characteristics of hypertension. Bivariate analysis indicated that group of age and education affected on hypertension stage-1 prevalence significantly. Multivariate analysis resulted in individual characteristics of poor citizens that determined hypertension incidence significantly were group aged of 55-90 years old (OR = 58.15 p = 0.000; 95% CI 7.09-476.7), aged 43-54 years old (OR = 11.07 p = 0.028; 95% CI 1.30-94.0) and aged 31-42 years old (OR = 8.75 p = 0.044; 95 % CI 1.05-72.6) respectively. In conclusion, hypertension is a major problem of poor citizens of Kota Banda Aceh. Government intervention programs were required in order to respond hypertension, such as guidance and easy access of healthy food, adequate physical activity, and controlling blood pressure regularly.

Keywords : Aceh, hypertension, health problem, poverty issues

Introduction

Mortality due to non-communicable diseases (NCDs) has been considered as the worldwide serious problem, it has killed more people each year than all other causes combined; moreover, almost 80 percent of NCDs deaths take place in low and middle income countries.[1] Obesity is related to a number of NCDs such as cardiovascular disease, osteoarthritis, diabetes, stroke, and hypertension. Furthermore, some of studies also found that overweight and obesity are closely related to hypertension.[2] The risk of developing cardiovascular disease was shown to be higher in hypertensive group than that in a normotensive group.[3]

Prevalence of hypertension in Indonesia based on Riskesdas 2007 with measure of blood pressure was 31.7 percent and the Province of Aceh was 30,2 percent.[4] In 2013 the prevalence was decreased to 25,8 percent and 21,5 percent.[5] The government interventions are required in order to build social protection system and develop sufficient standard of healthy living. Since 1976, during the uprising of Free Aceh Movement that ended in the early 2005, the overwhelming cycle of poverty has stolen lives and hopes from numbers of families in Aceh. In 2010, the Government of Aceh has established Aceh Health Insurance Program (JKA) which aims to maintain health of the poor in Aceh Province.[6]

However, this program merely deals with curative aspects which is lack of preventive aspects. This program is perhaps ineffective without being supported by another program which deals with the preventive aspects, since it is believed that the most influential precarious factor to health of the poor in Aceh is overweight and obesity problems. In poor societies, the working-aged people are crucial to carry out the burden of the family lives so that their vulnerability to the NCDs means a terror to the family sustainability. Moreover, revealing the relationship of obesity and elevated blood pressure among the working-aged population in urban poor society may aid crucial information to the poverty reduction program in Aceh. The working-aged people who have a medical condition of hypertension are not only economically active population at the present time but also will become as a burden to the family as soon as they become part of elderly population. The objective of this study is to prove that hypertension has been becoming a major health problem among the working-aged population (18-64 years old) in Aceh's urban poor area.

Evaluation in health economics regularly neglects the condition that may arise when expenditure in one budget area brings about savings in another (Phillips, 2005); as a result, the policy makers merely consider the curative program such universal health coverage as the only way to maintain health for the poor. For example, the use of a new therapy for obesity in patients being treated in primary care would result in fewer the needs for NCDs rehabilitation. Health economic evaluations have to fulfill the need of efficiency, especially in relation to draw decision to where additional resources should be used, or which areas should tolerate the impact of any cutbacks, within health care services.[7]

Obesity is becoming a major problem throughout the world population affected by the nutrition transition. The increasing westernization, urbanization and industrialization taking place in most countries around the world is closely related with changes in the diet towards one of high fat, high energy-dense foods and a sedentary life style.[8] The direct costs of obesity are predominantly for diabetes, cardio vascular disease and hypertension. Indirect costs, which are far greater than direct costs, include workdays lost, physician visits, disability pensions and premature mortality which all increase as BMI increases.[9]

Based on a survey conducted by World Health Organization, elevated blood pressure is expected to cause 7.5 million deaths or approximately about 12.8% of all deaths in 2010. Raised blood pressure is a major risk factor for cardiovascular disease. The prevalence of raised blood pressure is generally lower in high-income than in low-income populations. On the other hand, overweight or obesity is believed as the cause of 4.8% of all deaths each year. The fastest rise in the prevalence of overweight is reported in the lower-middle-income countries. Contrary to popular opinion, elevated blood pressure and obesity is becoming the serious problem in some of poor societies.[1]

Troung and Stroum (2005) through their large national study had verified that in the United States, obesity was increased every year between 1986 and 2002 among adults in the lowest income group and the lowest education group than among those in the highest level.[10] In a sample of more than 6,000 adults, Kim and Leigh (2010) also found that subjects who have low wages are found to have increased chance of being obese.[11] Lee et.al (2009) has considered the limited budgets and choices for poor families as the cause of unhealthy behaviors since high-fat foods dense with energy are more affordable, last longer, easier to find, and more satisfy the

hunger than fresh vegetables, fruits, lean meats and fishes. [12]

Ibrahim and Damasceno (2012) noted that hypertension in urban areas is common in developing countries because of the low rates of awareness, treatment, and control.[13] In India, prevalence of hypertension has grown each year by 116% in urban populations, and by 25% in rural populations.[14] In Nigeria, poverty creates socioeconomic barriers to hypertension, poor people without supported by government through sufficient financing of the health sector education, adequate health workers and facilities will not be able to deal with health risks and their implications.[15,16,17]

In particular, Indonesia had inadequate information for overweight of all age groups until the first national survey in 1996/1997 had collected data on BMI of adult male and female in urban areas. The survey was found that the prevalence of overweight among adult male was 14.9 percent and adult female was 24 percent.[18] A recent study regarding obesity and poverty in Indonesia had been conducted by Usfar et al (2010) who noted that nutrition is the fundamental element to alleviate poverty by reducing under nutrition and consequently obesity.[19] Romling and Qaim (2011) noted that obesity has been becoming a pandemic in Indonesia since current health policy is not concerning nutrition awareness campaign as the preventive program in order to maintain health of the poor. In contrast, most researchers agree that the low rate income population tend to obtain unbalanced food intakes that cause disproportionate consumption in association with changes in lifestyle that will effect a range of non-communicable diseases such as elevated blood pressure also should be considered as up-and-coming significant public health dilemma for Indonesia.[20]

Methods

This research was conducted from April 2012 to November 2012 using cross-sectional design with description analitical study. The population in this study were all poor people in Gampong Ceurih, Ulee Kareng sub-district of Banda Aceh, Province of Aceh, Indonesia. Samples were poor citizens with inclusion criteria over 18 years old, categorized as poor people according to standard of Central Bureau of Statistic and agreed to contribute to this research. The exclusion criteria of sample were mental disorder and hemophilia citizen. Number of samples selected was obtained by calculating using Hosmer Lameshow formula as stated below:

$$n = \frac{Z^2_{\propto\ X}\ P\ X\ Q}{d^2}$$

Based on that formula, samples required were 166 respondents and collected using purposive sampling technique. Dependent variable was stage-1 hypertension which gathered by measuring blood pressure using mercury tensimeter and stethoscope. Independent variables were: sex, age, education, employment, housing (data obtained from interview with questioner), and BMI (data collected by weight and height measurement).

Operational definitions of variables in this study were:

1. Hypertension defines using Statement by the American Society of Hypertension and the International Society of Hypertension 2013 in Association Indonesian Specialist Cardio Vascular 2015 are increasing blood pressure of systolic ≥140 mmHg or diastolic ≥90 mmHg.
2. Age is the number of years someone lives since he was born, categorized to group age of 18-30, 31-42, 43-54, and 55-90 years old.
3. Sex is concept which is used to identify the difference of male and female, categorized to: male and female.
4. Education is an alteration process of attitude and behavior through teaching and training, categorized to: no formal education, basic education, high school graduated and college/higher graduated.
5. Employment is the work that someone does to earn money, categorized to: unemploy, self-employed and laborer.
6. Housing is a status owned by someone who occupied home, categorized to: owner and rented.
7. Body Mass Index (BMI) is a nutritional status obtained using data of weight and height. Formula of BMI = weight (kg) / height^2 (m). BMI result, categorized to: normalweight and overweight.

Data analysis with logistic regression was conducted to reveal the association among dependent and independent variables using stata SE 12 software. Bivariate and multivariate logistic regression analyses were used to scrutinize linkage between several individual characteristics (independent variables) and hypertension (dependent variable). The bivariate analysis through the odds ratios will reveal the hypertension stage-1 probabilities for each potential risk factor (p-value < 0.25). Furthermore, *stepwise technique* [21] in multivariate analysis used several individual characteristics which are

determined hypertension stage-1 probabilities for each potential risk factor (p-value < 0.05).

In this case, y is a hypertension indicator while x is fulfilled by various individual characteristic of the study subjects such as sex, age group, education background, employment, housing status and BMI. The employed procedures in this study are pursuant to ethical clearance of National Institute of Health Research and Development, Indonesia Ministry of Health.

Results

This research was accomplished on 166 poor respondents in Desa Ceurih, Kecamatan Ulee Kareng Kota Banda Aceh. Only 151 respondents were included as samples (normal and overweight BMI), whereas other 15 respondents were excluded due to categorized as underweight. From 151 respondents, 39 (25.83%) were having hypertension and 112 respondents (74.17%) were not having hypertension.

From bivariate logistic regression, we found that age group (31-42, 43-54, and 55-90 years old) and educational backgrounds (basic educ, high school and college/higher) are statistically significant to hypertension. Table 2 shows that the probability of hypertension increases progressively with increasing age factor. Education factor is statistically significant to hypertension. Although gender factor is not statistically significant, the odd ratio confirms that female population had risk to get hypertension compare to male population. Likewise BMI characteristics, the odd ratio confirms that overweight had more risk to get hypertension when compared with normalweight.

Table 3 shows the result from stepwise technique for multivariate logistic regression, the characteristics of the poor those are significantly determining hypertension is only age. The age group (55-90) is the most high risk and statistically significant to hypertension with odds ratio 58.15 times. Probability of hypertension increases with increasing aged.

Discussion

Based on results from bivariate logistic regression, people aged 55-90 years old have 58.1–fold risk to get hypertension compare to those at younger age (43-54 and 31-42 years old) which have 11.0 and 8.75–fold risk respectively. This evidence supported Pratiwi VR (2013)[22] and Riskesdas (2013)[5] who implies that hypertension is a common health problem among elderly population.

This study indicated that respondents who attained basic, high school and college / higher education significantly affected the hypertension incidence. Lower education commonly correlated to hypertension incidence, due to paradigm and information obtained. Lower educated people (basic education) is statistically significant affected to hypertension and it has higher risk than high school and college / higher educated people. Research from Munthe (2011) mentioned that knowledge, attitude, and behavior of hypertension patients influenced by health education. Level of knowledge, attitude, and behavior of hypertension patients increased after health education was delivered.[23] Statistically, lower education correlated to blood pressure that the possibilities of risk suffering hypertension as many as 3.20 fold risk.[24] The risk of suffering hypertension is higher 2.3 fold risk on double role women worker with lower education than the higher one.[25]

Respondents with high educational background, they still live in poverty threshold. We assumed that there was a correlation between poverty and hypertension of respondents. Stress factor probably have a role in initiating hypertension. Nevertheless, the high educated were not able to free themselves from poverty. A study that had been conducted by Fitriani A (2012) revealed hypertension incidence correlated with stress condition and socioeconomic factor such as family expenses.[26] Moreover, Sigarlaki (2006) found that level of education related to hypertension in Kebumen district.[27]

Table 1. General Characteristics of the Study Subjects

Variable	Category	Total	Percent (%)
Blood Pressure	Normotension	112	74.17
	Hypertension	39	25.83
Sex	Male	30	19.87
	Female	121	80.13
Age	18-30	37	24.50
	31-42	46	30.46
	43-54	34	22.52
	55-90	34	22.52
Education	Noformal educ	15	9.93
	Basic educ	49	32.45
	High school	74	49.01
	College/Higher	13	8.61
Employment	Unemployed	99	65.56
	Self-employed	40	26.49
	Laborer	12	7.95
Housing	Owner	112	74.17
	Rented	39	25.83
BMI	Normalweight	70	46.36
	Overweight	81	53.64

Table 2. Socio-Economic Factors Influence to Hypertension for Multivariate Logistic Regression

Characteristics	Hypertension N=39		Normotension N=112		Odds Ratio	CI 95%	p>|z|
	N	%	N	%			
SEX							
• male	7	23.3%	23	76.6%	1.00	Reference	
• female	32	26.4%	89	73.5%	1.18	(0.46-3.01)	0.727
AGE							
• 18-30	1	2.7%	36	97.2%	1.00	Reference	
• 31-42	9	19.5%	37	80.4%	8.75	(1.05-72.6)	0.044*
• 43-54	8	23.5 %	26	76.4%	11.07	(1.30-94.0)	0.028*
• 55-90	21	61.7%	13	38.2%	58.15	(7.09-476.7)	0.000*
EDUCATION							
• No formal Educ*	9	60%	6	40%	1.00	Reference	
• Basic Educ	18	36.7%	31	63.2%	0.38	(0.11-1.26)	0.116*
• High School	11	14.8%	63	85.1%	0.11	(0.03-0.39)	0.001*
• College/Higher	1	7.6%	12	92.3%	0.05	(0.00-0.54)	0.013*
EMPLOYEMENT							
• Unemployed	28	28.2%	71	71.7%	1	Reference	
• Self-employed	8	20%	32	80%	0.63	(0.26-1.54)	0.315
• Laborer	3	25%	9	75%	0.84	(0.21-3.35)	0.811
HOUSING							
• Owner	30	26.7%	82	73.2%	1	Reference	
• Rented	9	23.0%	30	76.9%	0.82	(0.34-1.92)	0.649
BMI							
• Normalweight	16	22.8%	54	77.1%	1.00	Reference	
• Overweight	23	28.3%	58	71.6%	1.33	(0.63-2.79)	0.439

*reference : *significant at p-value < 0.25

Table 3. The Results from Stepwise Technique for Multivariate Logistic Regression

Characteristics	Hypertension N=39		Normotension N=112		Odds Ratio	CI 95%	p>|z|
	N	%	N	%			
AGE							
• 18-30	1	2.7%	36	97.2%	1.00	Reference	
• 31-42	9	19.5%	37	80.4%	8.75	(1.05-72.6)	0.044
• 43-54	8	23.5%	26	76.4%	11.07	(1.30-94.0)	0.028
• 55-90	21	61.7%	13	38.2%	58.15	(7.09-476.7)	0.000

Cycle of poverty that built by hypertension problem among the working-aged and elderly population in poor urban society may be expressed as follows: When they become ill, their entire household can become trapped in a downward spiral of lost income because of workdays loss even though high healthcare costs had been carried by a certain financial mechanism, when they suffer premature mortality, their children cannot achieve a sufficient standard level of education threaten their human capital level in future, unlike healthy people, the poor with hypertension problem cannot have more resources to devote to savings that provide funds for capital investment.

Conclusion and Suggestion

This study found that only age factor is significant to hypertension. The government intervention should not only deal with curative aspect such as enforcing universal health coverage program to entire population in Aceh because this program may be ineffective to maintain health of the poor if the healthy foods and health promotion are still hard to be obtained by poor families. Healthy eating and sufficient physical activity should be provided by government so that the risk of obesity and associated health problem, especially hypertension in urban poor population, may be diminished. Policies in other sectors which are critically imperative are food security with adequate access to healthy foods as well as safe water, sanitation, health promotion and energy.

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