The Relationship between Hypertensive Medication Adherence and Stroke Reccurence at Neurology Polyclinic in TNI AU dr. M. Salamun Hospital TK II Bandung

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Abstract

There are approximately 9.4 billion people died per year caused by stroke and heart disease. Hypertension is the main contributor of these diseases. To prevent stroke incident, the patient have to control their blood pressure by taking antihypertensive medication. Hypertensive medication adherence is important for the patient with hypertension because hypertension is a kind of disease that cannot be cured, so the patient must take medication for the rest of his life. Research method used in this study is correlation analysis. 63 respondents were drawn using concecutive sampling. Data analyzed by applying Chi square test, provides score that reflecting the relation between hypertensive medication adherences with stroke incidence. Research finding of this study shows that there are 7 respondents (11.1%) had high adherence in taking antihypertensive medication, 16 respondents (25.4 %) had medium adherence, and 40 respondents (63.5 %) had low adherence. There are only 17 respondents (27 %) have experienced stroke incidence in the last 3 months compared to the rest 46 respondents (73.3 %) who did not experience it. Furthermore, the analysis shows that there are no significant correlation between hypertensive medication adherence with stroke incidence, with p value = 0,518, $p \geq \alpha$ ($\alpha = 0.05$). This study identified other factors, besides hypertensive medication adherence, might causing stroke incidence. For this reason, the author suggest that there is a need to conducting more research using cohort approach to find out the most contributing factors (from the factors that has been identified in this study) which might reduce the possibility of the occurrence of stroke incidence.

Key words: **hypertension medication adherence, stroke reccurence**

Introduction

Riskesdas (2013) stated that hypertension is a State where the blood pressure in the veins increases chronically. It can occur because the heart works harder in pumping blood to meet the needs of oxygen and nutrients in the body. According to Corwin, E 2009 hypertension is the pressure more than 140 mmHg for systolic and more than 90 mmHg for diastolic. Hypertension can occur due to several factors; unchangeable factors such as race, age, family history, gender. And changeable factors such as obesity, insulin resistance syndrome (metabolic syndrome), less motion, smoke, sodium sensitivity, low potassium levels, excessive alcohol consumption and stress.

Tabel 1. Hypertension Classification based on JNC – VII 2004

Category	Sistolik (mmHg)	Diastolic (mmHg)
Normal	*<120*	<80
Prehypertension	120 – 139	80 – 89
Hypertension :		
Stage 1	140 – 159	90 – 99
Stage 2	≥ 160	≥ 100

Source :Joint National Committee On Detection, Evaluation and Treatment Of High Blood Pressure VII (2004)

WHO (2012) stated that hypertension is one of the diseases that contribute to the onset of heart disease and stroke together became the cause of death and disability number one as well as contribute almost 9.4 million deaths from cardiovascular disease each year. It is also explained by the Bustan in Burhanuddin M, et al (2013) that hypertension is the biggest cause of stroke events, both on the diastolic or systolic blood pressure. In a study conducted by Widjaja in Soebroto L, (2010), the cause of most strokes is hypertension is amounting to 81.7%. According to Corwin, E (2009) a stroke can occur when a high pressure in the brain and lead to hemoragi or due to an embolus regardless of vessels other than the brain exposed to high pressure.

Hypertension cannot be cured, so as to reduce the risk of complications in cardiovascular and other organs by controlling their blood pressure through health controls regularly, doing a diet low in salt and consuming drugs regularly (Ratnaningtyas & Djatmiko, 2011 in Evadewi and Sukmayanti, 2013). It is also described in a study conducted Moris, et al (2003 in Rosjidi and Nurhidayat 2014), that the decrease in blood pressure became the primary therapy to prevent the occurrence of an attack of heart and stroke. Thus, the control of blood pressure is the main way to prevent stroke.

The results of the Basic Health Research (Riskesdas) in 2007 shows only 0.4% of cases were dutifully taking medication of hypertension so that 76 percent of the public do not know that he has hypertension. This also explained by WHO in Annisa A, et al, 2014 that from 50% of known hypertension patients only 25% that gets the treatment and only 12.5% aretreated well.

Compliance with using the drug regularly in hypertension patients is an important pillar. Because hypertension drugs can reduces blood pressure in order to avoid the complications of hypertension in one of the most-namely, a stroke. According to Kamus Besar Bahasa Indonesia, dutifully is like according to the order, obeying orders, disciplined. According to Nursalam & Kurniawati (2007 in Ayu 2014), compliance is a term used to describe the behavior of patients in the drinking cure correctly about the dosage, frequency and time. Medication compliance is compliance in drug or drink regularly taking medication. Adherence to medical treatment is a person's ability to perform medical treatment according to the instructions. This means that dose, time, and manner of administering medications (Yulianti, 2009).

By regular drug use, in hypertension patients, blood pressure will be expected to remain stable; with the biggest complications such as stroke it will be spared. As described by the Bustan in Burhanuddin M, et al (2013) that hypertension is the biggest cause of occurrence of stroke.

According to Saidi, s. et al in Irawan D. S, et al (2014), stroke is a multifactorial disease with various leading cause of disability and death in the developing countries. So a stroke is a disease of the brain in the form of local nerve function disorder and/or global, the emergence of sudden, progressive, and fast and is a major cause of disability and death in the developing countries.

The multifactorial disease in the meaning of the cause of stroke stroke risk factor is that due to several factors, namely the risk factors that can be modified and cannot be modified. Risk factors that cannot be modified include age, sex, race, and history of stroke in the family, history of transient ischemic attack or stroke previously. Risk factors that can be modified include lifestyle

i.e. hypertension, diabetes mellitus, other, heart disease, smoking, alcohol, obesity, and the use of oral contraceptives. These factors also affect the incidence of stroke (Wijaya, 2013).

Based on the above considerations, then researchers would like to know whether there is a relationship of hypertension medication compliance with repeated stroke events in patients of hypertension with inclusion criteria are consuming the same anti-hypertension drug content namely Amlodipine in Bandung. This research is expected to contribute knowledge and adding insight on Health Psychology and clinical psychology related to the compliance of patients in taking drugs, too, expected stroke patients can run a healthy lifestyle and take control of other risk factors.

Method

The hypothesis is a conjecture of formulation problems or questions researchers. The hypothesis is a provisional answer from a benchmark research, guess, or the proposition while his righteousness would be evidenced in such research (Notoatmodjo, 2010).

Based on the hypothesis in this study was the zero hypothesis (Ho) there is no relationship between adherence to medication of hypertension with the occurrence of stroke. Whereas, the alternative hypothesis (Ha) there is a relationship between hypertension medication compliance with repeated strokes.

The variable is the size or characteristics of which are owned by members of a group with different owned by other groups (Notoatmodjo, 2010). The variable peneltian is the object that will be examined so that we can make sure that the variables we select research already eligible for researched (Budiman, 2013). A variable is an object to be measured or observed others vary from one object to other objects and measurable (Riyanto, 2011).

But in this study consists of free variables (independent) and variable (the dependent). The independent variable is the variable that affects the other variable, meaning that when the independent variable is changed then it will result in a change in another variable (Riyanto, 2011). In this research which is free or independent variable is adherence to medication of hypertension. The dependent variable is a variable dependent variable to research other research (Budiman, 2013). While according to Notoatmodjo (2010) varibel depends, are bound, as a result, influenced or variables that are affected. In this research which is a variable or dependency is an event repeated strokes.

The operational definition is a definition of the variables examined are operational in the field. The operational definition is useful to redirect to the measurement or observation instrument (Riyanto, 2011).

The operational definition of compliance is the level of attention of the patients in performing the treatment on the basis of Morisky Medication Adherence Scale (MMAS) 8. Morisky Medication Adherence Scale 8 (MMAS) is one of the methods used to measure the compliance of patients in the drinking cure which consists of three aspects, namely the frequency of forgetfulness in consuming drugs, deliberate action to stop taking the drug without being noticed by the medical team, and the ability of self control to keep taking drugs (Morisky & Munter, 2009 in Evadewi & Sukmayanti, 2013).

Morisky Medication Adherence Scale 8 (MMAS) consisting of 8 questions that had already been translated into bahasa Indonesia. Determining the answer questionnaires using scale Guttman; where are the answers of the respondents was limited to the two answers, namely Yes or no. The highest value and lowest 8 0. Wayward in category 0 (Maulidia, 2001). The category of medium or moderate in value 1 and 2. Wayward in category worth more than 2 (Morisky et al, 2008, 2012).

The operational definition of incident stroke restart IE whether there is a history of repeated strokes in the last 3 months. These questionnaires using scale Guttman; where are the answers of the respondents was limited to the two answers, namely Yes or no. The category does not (there is no history of stroke incidence in the last 3 months) is worth 0. Category Yes (there is a history of stroke incidence in the last 3 months) worth 1. Hypertension medication compliance with repeated strokes will be resized using the scale comprises 8 items on a scale of medication compliance and 1 items on the scale of incident stroke.

The population in this research is the stroke patients in the hospital's Neurological Clinic TK. II AIR FORCE Dr. m. Salamun Bandung. The sample in this research totalled 63 people with sample criteria that is Consuming the same antihipertensi drug content namely Amlodipine.

Sampling method used is a subject that is all sampling concecutive coming and meet the selection criteria included in the study until the required amount of the subject are met (the student learning centre of Flinders University, 2013).

The location of the research carried out at the hospital's Neurological Clinic TK. II AIR FORCE Dr. m. Salamun Bandung.

This research is a study of the correlation of analytical design, namely the design of research aimed at finding the relationship between two variables, namely the dependent variable and independent variable. With the main objective to know the relationship between adherence to medication of hypertension with the occurrence of stroke in the hospital's Neurological Clinic TK. II AIR FORCE Dr. m. Salamun Bandung. As for the approach to this type of research is a cross sectional is a type of research to study the dynamics of correlations between risk factors with effects, by means of approach, observation or data collection at once at one point.

Results

Table 2. Relation between Hypertensive Medication Adherence and Stroke Reccurencein the nervous Hospital Clinic TK. II AIR FORCE Dr. m. Salamun Bandung

Hypertensive Medication Adherence	Stroke Reccurence in the last 3 months				Total		*P value* 0,518
	No	%	Yes	%	N	(%)	
High	5	71,4	2	28,6	7	100	
Medium	10	62,5	6	37,5	16	100	
Low	31	77,5	9	22,5	40	100	
Total	46	73,0	17	27,0	63	100	

From the results of the analysis of the relationship between the hypertension medication compliance with repeated strokes retrieved that as much as 5 (71.4%) of stroke patients who dutifully in the drinking cure hypertension who didn't suffer a stroke back in 3 months and as much as 2 (28.6%) of stroke patients who dutifully in the drinking cure hypertension who had a stroke back in the last 3 months, as many as 10 (62.5%) of stroke patients who were or are in the middle of allegiance drinking cure hypertension who didn't suffer a stroke back in the last 3 months and as much as 6 (37.5%) of stroke patients who were or are in the middle of allegiance drinking cure hypertension who had a stroke back in the last 3 months, as many as 31 (77.5%), stroke patients who are not obedient in the drinking cure hypertension who didn't suffer a stroke within the last 3 months and as much as 9 (22.5%) of stroke patients who are not obedient in the drinking cure hypertension who suffer a stroke within the last 3 months. The results of statistical tests obtained value p value = 0.518, $p \geq \alpha$ ($\alpha = 0.05$). Ho accepted and thus it can be concluded there is no significant relationship between adherence to medication of hypertension with the occurrence of stroke.

Discussion

Hypertension is a disease that cannot be cured and hypertension is one of the chronic diseases that are often followed by other ailments that accompany and exacerbate the condition of the organs of the sufferer. The disease often become the companion of the disease of hypertension among other kecing sweet (diabetes mellitus), insulin resistance (R-I), hiperfungsi thyroid gland (hipertiroid), rheumatism, gout/hiperuricemid/uric acid, high blood fat levels (Hyperlipidemia) (Dalimartha, et al, 2008).

Therefore, hypertension was the forerunner of several diseases, such as stroke, myocardial infarction, renal failure, encephalopathy (brain damage), and seizures. According to

research conducted by Widjaja in Soebroto L, 2010 81.7% of hypertension that caused the stroke. A stroke can occur when high pressure in blood vessels due to hypertension, which is of course the pressures in the brain becomes higher and lead to hemoragi due to an embolus regardless of vessels other than the brain exposed to high pressure (Corwin, E, 2009).

To reduce the complications resulting from hypertension especially stroke, namely by controlling their blood pressure through health controls on a regular basis, doing a diet low in salt and consuming drugs on a regular basis (Ratnaningtyas & Djatmiko, 2011 in Evadewi and Sukmayanti, 2013).

Processing of the results of statistical tests using chi square value obtained p value = 0.518, $p \geq \alpha$ ($\alpha = 0.05$). This shows that there is no significant relationship between adherence to medication of hypertension with the occurrence of stroke or it can be concluded that the zero hypothesis (Ho) are accepted.

This is not in accordance with the research conducted by the Andromeda by 2014 which says there is a connection between the uncontrolled hypertension meaningfully with repeated strokes events ($p = 0.020$) and also according to Tarwoto, et al 2007 tenth patient TIA (transient ischemic attack) or stroke previously not getting or doing a good treatment will experience a stroke in the next three months and a third will suffer a stroke within five years post stroke first. And according to Friday (2002) that uncontrolled hypertension will lead to occurrence of stroke.

Repeated stroke occurrence does not have a single cause, but rather many causes (multifactorial causes) that can cause a stroke. The chance of the occurrence of stroke will increase with the more risk factors a person owned. The risk of stroke decreases with an increase of repeated quality control and control of risk factors (Friday, 2002 in Andromeda, 2014). Someone with a history of stroke has a greater tendency to have stroke risk factors especially when a reset is not be solved properly. Because it attempted the prevalence of secondary covering healthy lifestyle and control of their risk factors such as hypertension, diabetes mellitus, heart disease, TIA (transient ischemic attack) or stroke before, hiperkolesterolemi, infections, obesity, smoking, alcohol, the use of oral contraceptives. Management of post stroke so as not to be repeated strokes is not easy, this is due to various factors, among others, karenan due to intrinsic factors (sufferer) which concerns the modification of life as well as business factors extrinsic covering environment and the efforts of medical personnel in helping control the risk factors to prevent stroke (Wijaya, 2013, Misbach, 2011 in Andromeda, 2014).

Based on the results of interviews with stroke patients in the hospital's Neurological Clinic TK. II AIR FORCE Dr. m. Salamun Bandung, there are respondents who say dutifully in the drinking cure but still hit a stroke back within 12-13 weeks later (3 months later). When the author asked other risk factors that can affect the stroke, it turns out that the respondents admitted smoking in a day spent 3-4 packs of cigarettes and consuming coffee black 3-5 times a day. Many respondents thought that with blood pressure medication and other illnesses can be resolved so that the respondent keep doing unhealthy lifestyles such as smoking, drinking coffee, eating foods that are high in cholesterol and salt and not exercising. It is increasingly strengthening that stroke is a disease caused by some yg multifaktorial conditions diseases and lifestyles. So the necessary secondary prevalence not only pay attention to one factor the risk only.

But keep taking medication compliance should not be neglected because hypertension can not be healed, just get with the health controls on a regular basis, doing a diet low in salt and consuming drugs on a regular basis (Ratnaningtyas & Djatmiko, 2011 in Evadewi and Sukmayanti, 2013). Compliance with drinking the drug regularly in sufferers of hypertension is an important pillar. Because hypertension drugs can reduce blood pressure in order to avoid the complications of hypertension in one of the most-namely a stroke.

From the results of the data processing of compliance hypertensive drug obtained by drinking that very few respondents who dutifully in the drinking cure hypertension, that as many as 7 people (11.1%), and a small percentage of the respondents who are currently in the middle of allegiance or drink medication of hypertension, that as many as 16 people (25.4%), as well as most of the respondents who are not obedient in the drinking cure hypertension, that as many as 40 people (63,5%). It shows there are still many wayward stroke sufferers in drinking antihipertensi drugs. This can be caused by a variety of causes such as low socio-economic status, lower education, poverty, unemployment, lack of social support, living in unstable conditions,

transportation that are not affordable and expensive, an expensive medicine, culture and beliefs about disease and therapy as well as family dysfunction (Prihandana, 2012).

From the results of processing of data obtained by repeated stroke occurrence that most respondents did not have a history of repeated strokes in the last 3 months, i.e. as many as 46 people (73,3%) and a small proportion of respondents who have a history of stroke incidence in the last 3 months, that as many as 17 people (27.0%). Although the incidence of repeated strokes occur not only because of the wayward in the drinking cure, this thing ought to be controlled so that doesn't happen. According to Siswanto, 2005 recurring stroke criteria include; (1) different neurologic deficit with his first stroke; (1) incident that covers the Anatomy or areas of different blood vessels with the first stroke; (3) this incident have sub type a different stroke by stroke.

Conclussion

This shows that every stroke, a condition experienced by patients will be severe, because the deficit affected different neurologik with the first stroke. If neurologic deficits are exposed to different from the first stroke, meaning events that covers the anatomy of the blood vessels or the region is also different with the first stroke.

Many factors influence the occurrence of stroke, not only compliance with medication alone. Therefore, further research is expected to conduct a study analyzing the factors to look any factors that can minimize the incidence of stroke.

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