Efforts to Prevent Recurrence of Stroke in Stroke Patients

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ABSTRAK

Stroke merupakan masalah kesehatan yang utama bagi masyarakat modern saat ini. Seseorang yang pernah terserang stroke mempunyai kecenderungan lebih besar akan mengalami serangan stroke berulang. Penelitian ini bertujuan untuk menganalisis upaya pencegahan kejadian stroke berulang pada pasien stroke di Poli Syaraf RS Muhammdiyah Gresik. Jenis penelitian ini adalah analitik korelasional yaitu mencari keterkaitan antara dua variabel, dengan pendekatan cross sectional antara variabel independen dan dependen. Populasi dalam penelitian ini adalah seluruh pasien stroke di Poli Syaraf. Sampel diambil dengan teknik purposive sampling diperoleh responden berjumlah 48 orang. Hasil uji menunjukkan signifikansi hasil hitung seluruhnya kurang dari 0,05 yang berarti terdapat hubungan yang signifikan upaya pencegahan yaitu pengontrolan tekanan darah, pengontrolan gula darah, obesitas, kepatuhan minum obat, dukungan keluarga dan stres terhadap kejadian stroke berulang. Berdasarkan hasil penelitian diharapkan tenaga kesehatan dapat menjadikan upaya pencegahan stroke berulang sebagai langkah penting dalam penanganan pasien stroke dan memberi edukasi tentang hal tersebut kepada pasien dan keluarga. Pihak rumah sakit hendaknya membuat standar prosedur operasional atau bentuk kebijakan lain tentang upaya pencegahan stroke berulang.

Kata Kunci: *Pencegahan, Stroke Berulang, Kejadian, Stroke Berulang*

ABSTRACT

Stroke is a major health problem for modern society today. A person who has had a stroke has a greater tendency to have a recurrence of stroke. This study aims to analyze efforts to prevent the occurrence of recurrent stroke in stroke patients at the Neurological Poly of Muhammdiyah Gresik Hospital. This type of research is correlational analysis, which is looking for a relationship between two variables, with a cross sectional approach between independent and dependent variables. The population in this study is all stroke patients at the Neurological Poly. The sample was taken by purposive sampling technique obtained by 48 respondents. The test results showed that the significance of the overall count results was less than 0.05 which meant that there was a significant relationship between prevention efforts, namely blood pressure control, bloodsugar control, obesity, medication adherence, family support and stress to the occurrence of recurrent strokes. Based on the results of the study, it is hoped that health workers can make efforts to prevent recurrent stroke as an important step in handling stroke patients and provide education about it to patients and their families. The hospital should make standard operational procedures or other forms of policies regarding efforts to prevent recurrent strokes.

Keywords : *Prevent, Recurrent Stroke, Recurrent Stroke, Incidence*

INTRODUCTION

Stroke is a major health problem for modern society today, the occurrence of a decrease in consciousness characterized by damage to brain tissue due to reduced blood flow to the brain due to various causes characterized by sensory or motor paralysis of the body until the

occurrence of a stroke (Oktaviana et al., 2020). According to the WHO 2018, every year 15 million people around the world have a stroke. About 5 million suffer from permanent paralysis. In the Southeast Asian region, there are 4.4 million people who have had a stroke. According to health profile data in Indonesia has increased in frequency, in Indonesia itself stroke is ranked third after heart and cancer in the last three years stroke has increased by 12.1%. Stroke is also the leading cause of death in hospitals throughout Indonesia by 14.5% (Wicaksana et al., 2017). Based on the results of a survey (RISKESDAS, 2018), the highest rate of stroke patients in Indonesia is in East Java Province at 13.4%. Based on preliminary data from the patient register book, an average of 40 patients who visited the Neurologist Polyclinic of Muhammadiyah Gresik Hospital in May-June 2022 who had a history of recurrent stroke, almost all patients experienced various risk factors for recurrence. A person who has had a stroke has a greater tendency to have a recurrent stroke (Safitri & Saputro, 2022) .

Based on the history of the disease and the cause of the first stroke, it is necessary to routinely control your health regularly. If you have a history of hypertension, the higher the patient's blood pressure, the greater the likelihood of having a recurrent stroke, because hypertension can accelerate the hardening of the arterial blood vessel walls and result in the destruction of fat in smooth muscle cells, thereby accelerating the process of atherosclerosis disease.

Patients with a history of diabetes can accelerate the occurrence of atherosclerosis in both small blood vessels (microangiopathy) and large blood vessels (macroangiopathy) in all blood vessels, including cerebral and heart vessels Obesity is also suspected to be the cause of recurrent strokes, due to the sudden cessation of oxygen supply in the brain. Several things also need to be analyzed with the occurrence of repeated strokes on medication adherence. The role of family in motivating stroke patients with patient adherence, who said the role of the family who was less compliant after the first stroke was more likely to experience repeated strokes. And Family support Patients who have already had a stroke are needed. In addition, the level of stress Patients after a stroke can occur because there are disorders of body coordination, mental changes, emotional disorders, communication disorders, physical disabilities caused by stroke (M and Martin, 2015) .

Based on the above phenomenon, researchers are interested and interested in conducting research on "Analysis of efforts to prevent recurrence of stroke in stroke patients at the neurological polyclinic of Muhammdiyah Gresik Hospital.".

METHOD

The research design used in this study is analytical with a Cross Sectional approach, which is a type of research that applies at the time of measurement or observation of independent and dependent variables only once at a time. The sample of this study was all stroke patients at the Neurological Poly and a total of 48 people as respondents

RESULTS

Table 1. Characteristics of Patients with Age-Based Control at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

It	Age	Sum	Percentage (%)
1	20-40 years	10	20,8
2	41-60 years old	25	52,1
3	>60 years	13	27,1

	Sum	48	100

Table 1. Characteristics of Patients Controlled by Age Most of them are 41-60 years old as many as 25 people (52.1%) and a small part of 20-40 years old as many as 10 people (20.8%).

Table 2. Characteristics of patients controlled at the Neurological Poly of Muhammadiyah Gresik Hospital based on education

No	Education	Sum	Percentage (%)
1	SD	3	6,2
2	SMP	10	20,8
3	SMA	8	16,7
4	College	27	56,3
	Sum	48	100

Table 2. Patient characteristics based on education Most of them have high school education as many as 27 people (56.3%) and a small part have elementary education as many as 3 people (6.2%).

Table 3. Characteristics of Patients with Occupational Control at the Neurological Poly of Muhammadiyah Gresik Hospital

No	Work	Sum	Percentage (%)
1	ASN	10	20,9
2	Private	13	27
3	Entrepreneurial	25	52,1
	Sum	48	100

Table 3 Patient Characteristics Based on Occupation Most of them work as self-employed as 25 patients (52.1%), and a small part work as civil servants as many as 10 people (20.9%).

Table 4. Characteristics of Patients Controlled Based on Gender of Neuro Poly of Muhammadiyah Gresik Hospital

No	Gender	Sum	Percentage (%)
1	Man	30	62,5
2	Woman	18	37,5
	Sum	48	100

Table 4 Based on gender, most of them were male as many as 30 patients (62.5%) and a small part were female as many as 18 people (37.5%).

Table 12. Cross-tabulation of Blood Pressure Control Frequency with Recurrent Stroke Incidence in Stroke Patients at the Neurological Poly of Muhammadiyah Gresik Hospital

No	Blood Pressure Control Frequency	Recurrence of Stroke						Sum	
		1 time		2 times		>2 times			
		Σ	%	Σ	%	Σ	%	Σ	%
1	Routine	35	100	0	0,0	0	0,0	35	100
2	Infrequently	7	70,0	2	20,0	1	10,0	10	100
3	Never	1	33,3	1	33,3	1	10,0	3	100
	Sum	43	89,6	3	6,2	2	4,2	48	100
Uji Chi Square : p = 0,001									

Table 12. Cross-tabulation of Blood Pressure Control Frequency with Recurrent Stroke Incidence in Stroke Patients at the Neurological Poly of Muhammadiyah Gresik

Hospital showed that of the 35 patients who routinely controlled blood pressure, all (100%) experienced 1 recurrence stroke and none (0%) patients experienced 2 or more recurrence strokes. Furthermore, of the 10 patients who rarely had blood pressure control, most (70%) had 1 stroke event, and a small number (10%) had a stroke >2 times. Then of the 3 patients who never had blood pressure control, 1 patient had 1 recurrent stroke, 1 patient experienced 2 recurrent strokes and 1 patient experienced >2 recurrent strokes.

The statistical test of the Chi Square test showed that $\alpha = 0.001$ so $\alpha < 0.05$ which means there was a significant relationship between blood pressure control and the occurrence of recurrent strokes.

Table 13. Cross-tabulation of Blood Sugar Control Frequency with Recurrent Stroke Incidence in Stroke Patients at the Neurological Poly of Muham-madiyah Gresik Hospital

No	Blood Sugar Control Frequency	Recurrence of Stroke						Sum	
		1 time		2 times		>2 times			
		Σ	%	Σ	%	Σ	%	Σ	%
1	Routine	7	100	0	0,0	0	0,0	7	100
2	Infrequently	31	96,9	1	3,1	0	0,0	32	100
3	Never	5	55,6	2	22,2	2	22,2	9	100
	Sum	43	89,6	3	6,2	2	4,2	48	100
Uji Chi Square : p = 0,005									

Table 13 shows that of the 7 patients who routinely controlled blood sugar, all (100%) experienced 1 recurrence stroke and none (0%) patients experienced 2 or more recurrence strokes. Furthermore, of the 32 patients who rarely had blood sugar control, most (96.9%) experienced 1 recurrence of stroke, and a small number (3.1%) had 2 recurrence strokes. Then of the 9 patients who never had blood sugar control, most (55.6%) experienced 1 recurrent stroke and a small number (22.2%) experienced 2 recurrent strokes and >2 recurrent strokes, respectively.

The Chi Square statistical test showed that $\alpha = 0.005$ so $\alpha < 0.05$ which means there is a significant relationship between blood sugar control and repeated stoke events.

Table 14. Cross-tabulation of Obesity with Recurrent Stroke Incidence in Stroke Patients at the Neurological Poly of Muhammadiyah Gresik Hospital

No	Obesity	Recurrence of Stroke						Sum	
		1 time		2 times		>2 times			
		Σ	%	Σ	%	Σ	%	Σ	%
1	Kruger	8	100	0	0,0	0	0,0	8	100
2	Normal	27	100	0	0,0	0	0,0	27	100
3	Obesity 1	5	50,0	3	30,0	2	20,0	10	100
4	Obesity 2	3	100	0	0,0	0	0,0	3	100
	Sum	43	89,6	3	6,2	2	4,2	48	100
Uji Chi Square : p = 0,002									

Table 14. Cross-tabulation of Obesity with Recurrent Stroke Incidence showed that out of 8 patients who were thin, all (100%) experienced 1 recurrence stroke and none (0%) patients experienced 2 or more strokes. Furthermore, of the 27 patients with normal BB, all (100%) experienced 1 recurrence of stroke, and none (0%) of patients experienced 2 or more recurrence strokes. Then out of 5 patients with obesity, 1 half (50.0%) experienced 1 stroke and a small number (20.0%) experienced >2 recurrent strokes. Finally, patients with obesity 2 had a total (100%) recurrence stroke incidence of 1 time and no (0%) patients had 2 or more recurrence strokes.

The statistical test of the Chi Square test showed that $\alpha = 0.002$ so $\alpha < 0.05$ which means that there is a significant relationship between obesity and the incidence of recurrent strokes.

Table 15. Cross-tabulation of Drug Medication Compliance with Recurrent Stroke Incidence in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

No	Medication Compliance	Recurrence of Stroke						Sum	
		1 time		2 times		>2 times			
		Σ	%	Σ	%	Σ	%	Σ	%
1	Obedient	30	100	0	0,0	0	0,0	30	100
2	Non-Compliance	13	72,2	3	16,7	2	11,1	18	100
	Sum	43	89,6	3	6,2	2	4,2	48	100
Uji Chi Square : p = 0,010									

Table 15. Cross-tabulation of Drug Adherence with Recurrent Stroke Incidence showed that of the 30 patients who adhered to medication, all (100%) experienced 1 recurrence stroke and none (0%) patients experienced 2 or more recurrence strokes. Furthermore, of the 18 patients who did not comply, most (72.2%) experienced 1 recurrence of stroke, and a small number (11.1%) experienced >2 recurrence of stroke.

The statistical test of the Chi Square test showed that $\alpha = 0.010$ so $\alpha < 0.05$ which means that there was a significant relationship between medication adherence and the incidence of recurrent strokes.

Table 16. Cross-tabulation of Family Support with the Incidence of Recurrent Stroke in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

No	Family Support	Recurrence of Stroke						Sum	
		1 time		2 times		>2 times			
		Σ	%	Σ	%	Σ	%	Σ	%
1	Good	33	100	0	0,0	0	0,0	33	100
2	Keep	6	60,0	2	20,0	2	20,0	10	100
3	Less	4	80,0	1	20,0	0	0,0	5	100
	Sum	43	89,6	3	6,2	2	4,2	48	100
Uji Chi Square : p = 0,004									

Table 16. Cross-tabulation of Family Support with Recurrent Stroke Incidence showed that of the 33 patients whose family support was good, all (100%) experienced 1 recurrence stroke and none (0%) patients experienced 2 or more recurrence strokes. Furthermore, of the 10 patients whose family support was

moderate, most (60.0%) experienced 1 recurrence of stroke, and a small number (20.0%) experienced 2 and >2 recurrence strokes, respectively. Meanwhile, of the 5 patients whose family support was lacking, most (80.0%) experienced 1 recurrent stroke, and a small number (20.0%) experienced 2 recurrent strokes.

The statistical test of the Chi Square test showed that $\alpha = 0.004$ so $\alpha < 0.05$ which means that there was a significant relationship between family support and the incidence of recurrent strokes.

Table 17. Cross-tabulation of Stress with the Incidence of Recurrent Stroke in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

No	Stress	Recurrence of Stroke						Sum	
		1 time		2 times		>2 times			
		Σ	%	Σ	%	Σ	%	Σ	%
1	Low	32	100	0	0,0	0	0,0	32	100
2	Keep	7	63,6	2	18,2	2	18,2	11	100
3	Heavy	4	80,0	1	20,0	0	0,0	5	100
	Sum	43	89,6	3	6,2	2	4,2	48	100
Uji Chi Square : p = 0,007									

Table 17. Cross-tabulation of Stress with Recurrent Stroke Incidence showed that of the 33 low-stress patients, all (100%) experienced 1 recurrence stroke and none (0.0%) patients experienced 2 or more recurrence strokes. Furthermore, of the 11 patients who were moderately stressed, most (63.6%) experienced 1 recurrence of stroke, and a small number (18.2%) experienced 2 recurrence strokes and >2 recurrences, respectively. Meanwhile, of the 5 patients who were severely stressed, most (80.0%) experienced 1 recurrent stroke, and a small number (20.0%) experienced 2 recurrent strokes.

The statistical test of the Chi Square test showed that $\alpha = 0.007$ so $\alpha < 0.05$ which means that there is a significant relationship between stress and the incidence of recurrent strokes.

DISCUSSION

Blood Pressure Control in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

The results showed that most (72.9%) of the patients carried out blood pressure control routinely. Many factors influence stroke sufferers for routine control, including age, education and knowledge, and occupation. Age can be a benchmark for a person's maturity in thinking. The older a person is, the more mature they will be in thinking and acting. Likewise with awareness of blood pressure control in stroke patients. The results of this study showed that most of the respondents were 41-60 years old and over >60 years old. During these times, a person will have a broader view of the importance of maintaining health. For stroke sufferers, blood pressure control is indeed the main factor in maintaining more fatal health risks.

Blood Sugar Control in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

The results of data collection showed that most patients (66.7%) rarely did blood sugar control. The implementation of blood sugar control is rarely carried out by patients due to several reasons, including most patients do not have their own tools to check blood sugar. If you want to check blood sugar, you have to come to a health care facility, it is different with

blood pressure checkers, in many places blood pressure checkers are provided, even many patients have their own tools.

The results of this study are in accordance with the opinion (Puspitasari, 2020) that the most common cause of stroke is high blood pressure which in medicine is called hypertension.

Obesity in Stroke Patients at the Neurological Poly of Muhammadiyah Gresik Hospital

The results of collecting data on obesity showed that most (56.25%) patients were not obese or normal, and even 16.7% of patients were classified as thin.

According to (Asyfah et al., 2020) explained that obesity or obesity is one of the causes of non-communicable diseases, such as diabetes, heart, hypertension and stroke. The Indonesian Ministry of Health released that non-communicable diseases are one of the causes of death in Indonesia.

What can be explained from the results of this study on obesity is that respondents realize that the body mass index or BMI is important in order to maintain the idealistic body. Many things that affect respondents to have a normal BMI include education and knowledge. This study shows that most of the respondents have high school and university education. From this education, it can be seen that they have enough knowledge about the importance of maintaining weight for health.

Adherence to Taking Medication in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

The results of the study on medication adherence found that most patients (62.5%) were compliant in taking medication.

Factors that affect patient adherence to medication include individual factors, environmental factors, factors related to health workers, and factors related to treatment (Pramana et al., 2019) . Individual factors are age, gender, education, knowledge, cognitive impairment and psychopathology. The gender factor, he said, is that women's obedience rate is better than that of men and young women are more obedient than young women.

Family Support for Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

The results showed that the support of the patient's family was mostly (68.8%) good. Good family support cannot be separated from socio-economic circumstances including types of jobs, income, and education (2015, 2015) . Furthermore, it is said that in upper-middle-class families, support is more democratic, while for the middle-to-upper class, it tends to be autocratic. Based on the theory put forward by Friedman above, it can be said that the results of this study are explaining, because most of the respondents are self-employed workers who have sufficient income. In addition, most of the repondents are also educated in high school and college, so the support for patients is also good.

Stress in Stroke Patients at the Neurological Poly of Muhammadiyah Gresik Hospital

The results of this study show that most (66.7%) patients have low stress levels. According to Pittara in 2022, stress is a change in the body's reaction when faced with extreme new pressure, threats or situations. When stressed, the body releases cortisol and the hormone adrenaline, which causes blood pressure and heart rate to rise, muscles to tense and breathing to become rapid. It is further said that factors that can cause stress include traumatic events, family disharmony, chronic illness, unequal economy, unconducive environment, workload and adverse events such as termination of employment or divorce (Oktamia, Lisa, 2016).

Incidence of Recurrent Stroke in Stroke Patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital

The results of data collection seen in Table 11 show that most patients experience 1 recurrent stroke. This indicates that the patient is not

very extreme in the severity of the disease. The hope is that the stroke will recur only once, thereby reducing or even eliminating the risk of being more severe.

Analysis of Efforts to Prevent Recurrent Stroke Incidence in Stroke Patients at the Neurological Polyclinic of Muhammdiyah Gresik Hospital

The cross-tabulation in Table 12 to Table 17 shows that all sub-variables of efforts to prevent recurrent stroke events have an effect on the incidence of recurrent stroke. The results of the Chi Square test showed that the relationship between all sub-variables of prevention efforts including blood pressure control, blood sugar control, obesity, medication adherence, family support, and stress on recurrent stroke all resulted in a significance (α) of less than 0.05, meaning that all of these sub-variables had a strong relationship with recurrent stroke.

1. First, the frequency of blood pressure control has a very significant influence on the incidence of recurrent strokes. A total of 35 patients who carried out routine blood pressure control all (100%) only experienced 1 recurrent stroke event.

   The benefits of blood pressure control, especially for stroke patients, are very large, including helping to detect the risk or possibility of increasing hypertension which is the main trigger factor for stroke, getting the benefits of knowing the health condition of blood vessels and heart, being able to distinguish between hypertension and white coat syndromes, and knowing appropriate preventive measures.
2. Second, the frequency of blood sugar control also has a very significant influence on the incidence of recurrent strokes. As previously explained, high blood sugar is not a direct trigger for stroke, but when compared to people without diabetes, people who have diabetes have the potential to have a stroke 1.5 times. This happens because diabetes can affect the body's ability to produce insulin or use it properly, because insulin has an important role in pulling sugar into the cells from the bloodstream, a diabetic often has too much sugar in his blood, over time this excess sugar can add to the buildup of clots and fat deposits in the vessels that supply blood to the neck and brain. Then if the deposit is left unchecked, it can cause narrowing of the walls of blood vessels and even blockages. When blood flow to the otah is blocked or stopped, this is when stroke occurs.
3. Third Avoiding obesity is also one of the sub-variables of efforts to prevent the occurrence of recurrent strokes. Like blood sugar, obesity is also not the main trigger of stroke. However, there are many risks that can occur due to obesity. Junaidi in 2011 said Obesity can also cause stroke through snoring or snoring and sleepapnea, due to a sudden cessation of oxygen supply to the brain. Obesity also makes a person more likely to have high blood pressure, increases the risk of diabetes mellitus, and also increases the by-products of excessive metabolism, namely oxidants/free radicals. Thus, the causal flow and the relationship between stroke and obesity become very clear, so if a person does not experience obesity, it means that the person is free from one important factor in contracting stroke (Gaol, 2023) .
4. Fourth, medication adherence is one of the keys to the success of therapy in various chronic diseases. The main function of medication adherence in ischemic stroke patients is to prevent recurrence and control risk factors. Compliance with taking this medication is important because stroke patients generally have to take relatively a lot of medication and for a long period of time, this is a special concern for how patients and their families make efforts so that patients always comply with taking medication. Word Heart Federation in 2016 said that patient

compliance is very necessary to achieve the success of therapy, especially in the treatment of non-communicable diseases.

5. Fifth is family support, (Suriya, 2017) said that the greater the role of the family in motivating their family members after stroke will give confidence to post-stroke patients. Likewise with (Djila et al., 2017) explained that stroke sufferers really need treatment even after they have recovered because it requires recovery efforts for a long period of time, there are even people who have suffered from stroke throughout their lives. They desperately need the help of their families in fulfilling all their care to maintain their physical and psychological health.
6. Sixth is stress, where if the patient experiences stress, the impact is the process of atherosclerosis, which is an increase in the production of vigilance hormones by the body. Junaidi in 2014 also said that the tendency of people who are stressed will generally encourage self-harming actions such as drinking alcohol, smoking, eating and snacking excessively (Sukma et al., 2020) .
7. Thus, stroke sufferers are expected to be free from stress so that the psyche can be stable, this of course requires efforts on how to manage stress so that it is not excessive or even disappears altogether. Some of the ways that can be admitted include taking time outside the house, meeting friends, relatives, scheduling leisure time, writing something to express emotions, doing hobbies or new things, always relaxing.

CONCLUSION

Based on the results of the research and discussion in the previous chapter, the conclusion of this study is as follows: Most stroke patients at the Neurological Poly of Muhammadiyah Gresik Hospital routinely control blood pressure 72.9%. Most stroke patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital rarely do blood sugar control 66.7%, Most stroke patients at the Neurological Polyclinic of Muhammadiyah Gresik Hospital have a normal BMI of 56.25%, Most of the stroke patients at the Neurological Poly of Muhammadiyah Gresik Hospital are compliant in taking medication 62.5%, Most of the stroke patients at the Neurological Poly of Muhammadiyah Gresik Hospital received good family support 68.8, Most of the stroke patients at the Neurological Poly of Muhammadiyah Gresik Hospital only experienced low stress of 66.7%, Most stroke patients at the Neurological Poly of Muhammadiyah Gresik Hospital only experienced 1 recurrence of stroke 89.58%, and There is a significant relationship between stroke prevention efforts and the occurrence of recurrent strokes at the Neurological Polyclinic of Muhammadiyah Gresik Hospital.

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