The Use of Antihypertensive and Antiplatelet Drugs on Hospital Stroke Patients

By Akrom

◻ 252

The Use of Antihypertensive and Antiplatelet Drugs on Hospital Stroke Patients

Anggy Rima Putri[1], Akrom[2], Budiyono[1]
[1] Magister Clinical Pharmacy Program, Ahmad Dahlan University, Indonesia
[2] Department of Pharmacology and Clinical Pharmacy & Drug information and Crisis Center, Ahmad Dahlan University, Indonesia

Article Info	ABSTRACT
	Medicine is one of the most important part of the healing process, the restoration of health and prevention of disease. This study aims to describe the use of drugs, particularly antihypertensive and antiplatelet drugs in stroke patients hospitalized in PKU Muhammadiyah Hospital Bantul during December 2014-April 2015. This research is observational descriptive study. Data collection was done prospectively with a survey of stroke patients in inpatient Al-Insan and al-A'raaf wards in PKU Muhammadiyah Hospital Bantul during the specified period. During the study there were 61 stroke patients sampled in the study, of which 41 (67.2%) were geriatrics and 20 (32.8%) were not geriatrc. From the data, 28 (45.9%) patients did not receive antihypertensive drugs, only 33 (54,1%) patients received antihypertensive drug.The antihypertensive drugs type were given to patients were ACEI 9 (14.8%) and CCB 6 (9.8%), as well as combinations ACEI and CCB 7 (11.5%). Most patients did not receive antiplatelet 43 (70.5%), whereas patients receiving antiplatelet drugs most was the kind of aspirin 17 (27.9%). From the above data it can be concluded that the use of antihypertensive drugs in stroke patients in the inpatient ward in PKU Muhamaddiyah Hospital Bantul quite frequently used, while the use of antiplatelet drugs in these cases rarely used.

Corresponding Author:

Akrom,
Department of Pharmacology and Clinical Pharmacy,
Ahmad Dahlan University,
Street Prof. Dr. Soepomo, Janturan, Umbulharjo, Yogyakarta. Indonesia.
Email: akmaa_uad@yahoo.co.id

1. INTRODUCTION

Decision drug use always contains the consideration of benefits and risks. Patients who received the drug are at risk of experiencing drug-related problems. The complexity of the disease and drug use, as well as highly individual patient response increase emergence of drug-related problems [1].

The goal of therapy with medication is the achievement of therapeutic outcome, namely improving the quality of life of patients with minimal risk. In each there is a risk of drug use, whether known or not, called drug misadventure, which included adverse drug reactions and medication errors. Adverse drug reactions are more affected by the condition of the patients, whereas medication errors occur due to human error or weakness of the existing system [2].

One of the diseases which is a medical emergency that can cause physical and mental disabilities, and can cause sudden death was a stroke. Stroke is a cerebrovascular disease is the leading cause of death is often the case in Indonesia. Service centers in neurology Indonesia number of people with circulatory disorders of the brain (GPDO) station is the first of all patient admissions [3],[4]. The prevalence of stroke in Indonesia amounted to 12.1 deaths per 1000 population and which has been diagnosed by health

personnelwas 7 deaths per 1000 population. Stroke causes of death in almost all hospitals in Indonesia, namely 14.5 percent [5].

2. RESEARCH METHOD
2.1. Research Tool
The tool used for research in the form of Case Record Form (CRF).

2.2. Materials Research
Materials used in the study are primary data and secondary data. The primary data comes from interviews to patients while secondary data derived from the patient's medical record. Information obtained from both primary data and secondary data is then written in the Case Record Form (CRF), which has been created by researchers and has been in legitimate right by the ethics committee of the University of Ahmad Dahlan.

2.3. Stage of Research
2.3.1. Study Design
This is a descriptive observational research. Data were collected data collection was done prospectively with a survey of stroke patients in inpatient Al-Insan and al-A'raaf wards in PKU Muhammadiyah Hospital Bantul during the month of December 2014-April 2015.

2.3.2. Sampling
Sample in this study were all patients with stroke in RS PKU MuhammmadiyahBantul in the study period ie during December 2014-April 2015 were willing to engage in research and included in the inclusion criteria. Researchers conducted a personal approach to the patient or the patient's family to explain the intent and purpose of the study and ask the patient to be willing to become respondents in this study. Before data collection, subject to the approval of the respondents informed consent form signed by the respondents as proof that the respondents willing to participate in research and understand the purpose of the study.

2.3.3. Operational Definitions
1) Patients in this study were all patients diagnosed stroke with or without comorbidities, who are hospitalized in the wards Al-Insan and al-A'raaf at PKU Muhammadiyah Hospital in Bantul in December 2014-April 2015, until the patient go home, situation improved, referenced, or die.
2) Stroke in this study used a definition of Lionel [6], ie cerebrovascular disease (blood vessel of the brain), which is marked by the death of brain tissue (cerebral infarction) resulting from reduced blood flow and oxygen to the brain. No second stroke classification, are:
    a) Stroke Ischemic or non-hemorrhagic stroke caused by atherosclerosis or thrombus that has blocked a blood vessel to the brain.
    b) Haemorrhagic stroke is a stroke caused by a ruptured blood vessel or bleeding in the brain, so that normal blood flow is hampered and blood seeps into the region in the brain and damage.
3) Drug Use in this study are drugs given to inpatients with respect to the stroke their suffered.

3. RESULTS AND ANALYSIS
3.1. General Characteristics
This study discusses the use of antihypertensive and antiplatelet drugs in stroke patients who are hospitalized at PKU Muhammadiyah Hospital in Bantul with a sample of 61 patients. General characteristics of patients by age, gender, education, employment, and payments are presented in Table 1.
According to the Table 1 in mind that the majority of patients aged> 60 years were 41 (67.2%). A total of 34 (55.7%) were women. The majority of patients was completed elemantary school were 42 (68.9%). A total of 36 (59.0%) work as farmers, employee, and labor. A total of 41 (67.2%) payment by BPJS/Jamkesmas/Jamkesda.

Table 1. General Characteristics of Patients in inpatient ward PKU Muhammadiyah Hospital in Bantul

Characteristics		Frequency	Percentage
Age	> 60 years	41	67.20
	< 60 years	20	32.80
Sex	Man	27	44.30
	Woman	34	55.70
Education	Elementary	42	68.90
	Junior	10	16.40
	Senior	9	14.80
Job	No work	17	27.90
	PNS	1	1.60
	Entrepreneur	7	11.50
	Farmers, Employee, Labor	36	59.00
Payment	Public / Governmental	12	19.70
	BPJS Askes PNS	7	11.50
	BPJS Jamkesmas/Jamkesda	41	67.20
	BPJS Mandiri	1	1.60

3.2. Clinical Characteristics

Clinical characteristics include the patient arrives at the hospital the category of stroke, diagnosis status, action MSCT head, RPD Stroke, and smoking history are presented in Table 2.

Table 2. Clinical Characteristics of Patients in inpatient ward PKU Muhammadiyah Hospital in Bantul

Characteristics		Frequency	Percentage
Arrived in	< 4 hours	33	54.10
hospital wards	> 4 hours	28	45.90
Stroke category	Non Hemorrhagic Stroke	21	34.40
	Hemorrhagic Stroke	7	11.50
	UnidentifiedStroke	33	54.10
MSCT head	Yes	28	45.90
	No	33	54.10
RPD stroke	Yes	12	19.70
	No	49	80.30
History of	Yes	3	4.90
Smoking	No	38	62.30
	Former smoker	20	32.80

According to the Table 2, more than half of the patients arrived at the hospital <4 hours by 33 (54.1%). A total of 33 (54.1%) of stroke was not identified. A total of 33 (54.1%) did not do MSCT head. Most patients with no history of stroke by 49 (80.3%).A total of 38 (62.3%) patients not to smoke.

3.3. Drug Use

Description of drug use in the inpatient ward PKU Muhammadiyah Hospital in Bantul is presented at Table 3. Based on Table 3 is known that all patients did not receive thrombolytic, however, all patients received a neuroprotective. Most patients get the drug neurotrophic 56 (91.8%). A total of 33 (54.1%) patients received antihypertensive drugs. Most patients did not receive antiplatelet, only 17 (27.9%) patients receiving antiplatelet drugs. Whereas patients received hemostatic drugs as much as 9 (14.8%).

Table 3. Drug Use in the inpatient wards PKU Muhammadiyah Hospital in Bantul

No	Drug use		Frequency	Percentage
1	Thrombolytic	Not use	61	100.00
		Use	0	0
2	Neuroprotective	Not use	0	0
		Use	61	100.00
3	Neurotrophic	Not use	5	8.20
		Use	56	91.80
4	Antihypertensive	Not use	28	45.90
		Use	33	54.10
5	Antiplatelet	Not use	44	72.10
		Use	17	27.90
6	Hemostatic	Not use	52	85.20
		Use	9	14.80

3.4. Use of Antihypertensive Drugs and Antiplatelet

Antihypertensive Drug Use and Antiplatelet in stroke patients in the inpatient ward PKU Muhammadiyah Hospital in Bantul are presented in the following Table 4.

Table 4. Drug Use in the inpatient wards PKU Muhammadiyah Hospital in Bantul

No	Drug use		Frequency	Percentage
1	Antihypertensive	Not use	28	45.90
		ACEI	9	14.80
		ARB	3	4.90
		CCB	6	9.80
		ARB,CCB	5	8.20
		ARB,BB,CCB	1	1.60
		ACEI,CCB	7	11.50
		ACEI,BB,Diuretic	1	1.60
		ACEI,ARB	1	1.60
5	Antiplatelet	Not use	43	70.50
		Aspirin	17	27.90
		Cilostazole	1	1.60

Based on table 4 is known that as many as 28 (45.9%) patients did not receive antihypertensive drugs, whereas most patients antihypertensive drugs given to patients is the type of ACEI 9 (14.8%) and CCB 6 (9.8%), as well as combinations ACEI and CCB 7 (11.5%). Most patients do not receive antiplatelet 43 (70.5%), whereas patients receiving antiplatelet drugs aspirin most is the kind of 17 (27.9%).

Hypertension in patients with ischemic stroke, there is evidence that blood pressure will rise generally occurs during ischemic stroke and can last several days. The increase in blood pressure (high-normal blood pressure) is needed to maintain the blood flow of the brain after a stroke occurs and going down slowly by itself without treatment. However, the blood pressure is too high can not be left so the need for giving of antihypertensive in stroke patients with certain conditions. In ischemic stroke systolic blood pressure> 220 mmHg or diastolic blood pressure> 110 mmHg should be given antihypertensive drugs [7]-[9]. In a hemorrhagic stroke decreased blood pressure will reduce the risk of re-bleeding or bleeding that is continuous, but the area around the hematoma increased ischemic brain because autoregulation in this area has been lost. On this basis antihypertensive drugs are given if the systolic pressure> 180 mmHg or diastolic blood pressure> 100 mmHg [10]. According Mancia (2010) advocated the reduction of blood pressure as early as possible in intracerebral hemorrhage with mean arterial blood pressure> 145 mmHg, to prevent rebleeding, reduction of intracranial pressure and brain edema [11].

Antiplatelet therapy aims to prevent a secondary stroke in ischemic stroke by preventing clot formation. Giving antiplatelet could as a single agent or in combination with consideration of the advantages and disadvantages according to the patient's condition [12]. In this study antiplatelet drugs most commonly used is aspirin, where aspirin is an antiplatelet first choice for preventing the occurrence of ischemic stroke. The use of aspirin can reduce death and disability caused by ischemic stroke. The Internatioan Stroke Trial (IST), explains that aspirin 300 mg per day can significantly reduce stroke recurrence [13]. In the acute treatment of ischemic stroke cerebral blood flow restoration to remove the blockage/clots and stop cellular damage associated with ischemic/hypoxic, is the first medical treatment that should be given to stroke patients. Giving antiplatelet (aspirin) is recommended for every acute ischemic stroke [14].

4.   CONCLUSION

The results of this study indicate that the use of antihypertensive drugs in stroke patients in the inpatient ward PKU Muhamaddiyah Hospital Bantul used often enough, but not so with the use of antiplatelet drugs which in this case is still rarely used. This is probably related to the risk of gastroenteritis, especially for geriatric patients, as well as the type of stroke suffered by the patient, where giving of antiplatelet recommended in treatment of ischemic stroke, but are contraindicated when given in hemorrhagic stroke because it can increase the risk of bleeding. However, giving of antiplatelet still recommended for any cases of acute ischemic stroke, especially if the benefits received is greater than the risk / harm that may be caused.

REFERENCES

[1]   AHA, "Medication Errors in Acute Cardiovascular and Stroke Patients a Scientific Statement From the American Heart Association," *Circulation*, vol. 121, pp. 1664-1682, 2010.
[2]   L. T. Kohn, J. M. Corrigan, M. S. Donaldson, "Error in Health Care: A Leading Cause of Death and Injury," in L. T. Kohn, "To Err is Human, Institute of Medicine," National Academy Press, Washington D.C., pp. 26-47, 2000.
[3]   M. A. Hussain, A. Al Mamun, S. A. Peters, *et al.*, "The Burden of Cardiovascular Disease Attributableto Major Modifiable Risk Factors in Indonesia," *J Epidemiol*, pp. 1-7, 2016.
[4]   Ministry of Health Republic of Indonesia, "Indonesia Health Profile 2013," Jakarta, Indonesia, 2014.
[5]   The National Institute of Health Research and Development, "Result of National Basic Health Research (RISKESDAS 2007), Ministry of Health, Republic of Indonesia, Jakarta, 2013.
[6]   G. Lionel, "Lecture Notes: Neurology, Ed. VIII," Jakarta, Erlangga, 2008.
[7]   Ministry of Health Republic of Indonesia, "Stroke Guideline," Ministry of Health, Republic of Indonesia, Jakarta, 2013.
[8]   The European Stroke Organization (ESO) Executive Committee and the ESO Writing Committee, "Guidelines for Management of Ischaemic Stroke and Transient Ischaemic Attack," 2008. www.esostroke.org.
[9]   J. Potter, A. Mistri, F.Brodie, *et al.*, "Controlling Hypertension and Hypotension Immediately Post Stroke (CHHIPS) – a randomised controlled trial," *Health Technology Assessment*, vol/issue: 13(9), 2009.
[10] PERDOSSI, "The 2011 Stroke Guideline," Indonesia Neurologist Doctor Association, Jakarta, 2011.
[11] G. Mancia, "Effects of Intensive Blood Pressure Control in the Management of Patients With Type 2 Diabetes Mellitus in the Action to Control Cardiovascular Risk in Diabetes (ACCORD) Trial," *Circulation*, vol. 122, pp. 847-849, 2010.
[12] D. Y. Huang, W. G. Eisert, "Chance Trial Early Short-Term Dual Antiplatelet Treatment for Stroke Prevention," *Stroke*, vol. 44, pp. 3623-3624, 2013.
[13] Dipiro, *et al.*, "Pharmacotherapy A Pathopysiologic Approach," Mc – Graw Hill, New York, vol. 452, pp. 456-459, 2005.
[14] K. Kikuchi, H. Uchikado, M. Morioka, *et al.*, "Clinical Neuroprotective Drugs for Treatment and Prevention of Stroke," *Int. J. Mol. Sci*, vol. 13, pp. 7739-7761, 2012. doi: 10.3390/ijms13067739.

The Use of Antihypertensive and Antiplatelet Drugs on Hospital Stroke Patients

ORIGINALITY REPORT

7%

SIMILARITY INDEX

PRIMARY SOURCES

1	fiveinthegrove.com Internet	38 words —	2%
2	iaescore.com Internet	22 words —	1%
3	docplayer.net Internet	17 words —	1%
4	files.eric.ed.gov Internet	14 words —	1%
5	www.shoushi.net.cn Internet	11 words —	< 1%
6	mangosteen.web.id Internet	11 words —	< 1%
7	www.nejm.org Internet	10 words —	< 1%
8	www.hpm.umn.edu Internet	9 words —	< 1%
9	www.unipg.it Internet	9 words —	< 1%
10	www.dtic.mil Internet	8 words —	< 1%

content.karger.com

11   Internet   8 words — < 1%

12   C. Weimar. "Predictive value of the Essen Stroke   8 words — < 1%
     Risk Score and Ankle Brachial Index in Acute
     Ischemic Stroke Patients from 85 German Stroke Units", Journal
     of Neurology Neurosurgery & Psychiatry, 06/27/2008
     Crossref

EXCLUDE QUOTES   OFF   EXCLUDE MATCHES   OFF
EXCLUDE BIBLIOGRAPHY   ON