

Hypertension Treatment and Control in Older Adult at Tanjung Sari Public Health Center

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Abstract

Background: Hypertension is considered as a major health problem in Indonesia, especially in older adult population because of its prevalence increases by age. Treatment strategy and control management of hypertension in Public Health Center (Pusat Kesehatan Masyarakat, Puskesmas) as primary health care should be enhanced to overcome this issue. This study aimed to describe the pattern of antihypertensive agent in older adults.

Methods: This was a descriptive study with total sampling method for data collection. Data were collected from medical record of older adult patients with diagnosis of hypertension at Puskesmas Tanjung Sari from January to December 2013. The variables observed were gender, number of visits, the degree of hypertension, types of antihypertensive drug, combinations of antihypertensive drugs, and blood pressure control.

Results: The number of older adults with hypertension was 180 people. Some of which, 120 women (66.7%) participated, 152 (84.4%) had hypertension stage 2, 100 (55.6%) had just one visit, and 80 (44.4%) had more than one visit. Among 80 participants with more than one visit, 8 had achieved target blood pressure. There were 166 participants (92.2%) who received single antihypertensive agent (captopril was given the most), and 14 participants (7.8%) who received the combination of two antihypertensive agent (combination of captopril and HCT (hydrochlorothiazide)) were given the most).

Conclusions: More than 75% of older adult with hypertension have stage 2 hypertension and are treated by single antihypertensive agent. Ninety percent of the patient have uncontrolled blood pressure. [AMJ.2016;3(1):17-21]

Keywords: Antihypertensive agent, hypertension, older adult, public health center

Introduction

Increased life expectancy in few past century causes a continued increase of older adult population.¹ The population of older adult in the world will increase from the estimated 810 million in 2012 to 2 billion in 2020.1 The population of older adult in Indonesia is also expected to increase from 9% in 2012 to 25% in 2050.¹ Most of the causes of death in older adult in Indonesia are non-communicable diseases such as heart disease, stroke, and diabetes.² Hypertension is a disease that increases the risk of heart disease, stroke, and kidney disease and its prevalence increases by age.^{3,4} Hypertension causes death of 8 million people worldwide each year and is included as

one of the 10 major causes of death in the older adult in Indonesia.^{2,3}The percentage of older adult who are treated in Public Health Center (Pusat Kesehatan Masyarakat, Puskesmas) is 29.31% in 2012.² The Ministry of Health made a policy aimed for Puskesmas as a primary health care to improve control and treatment management of hypertension in Indonesia.⁵

The characteristics of older adults include multi morbidity and physiological changes in various organs that can affect the pharmacokinetics and pharmacodynamics of drugs, hence, older adults are at high risk of drug accumulation.⁶⁻⁸ It contributes to the modification and influence the selection of drugs in the older adults.⁸ Since the hypertension is one of the 10 major causes

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of death in the older adults in Indonesia, the control and treatment strategy become very important. In accordance with the background above, this study aimed to determine the treatment and control of hypertension in older adults in Puskesmas.

Methods

This study used descriptive study conducted at Puskesmas Tanjung Sari with total sampling method for data collection. The subject used in this study was medical record of older adult patients with diagnosis of hypertension at Puskesmas Tanjung Sari from January 1st to December 31st 2013. The instruments of this study used secondary data in the form of medical records at Puskesmas Tanjung Sari. The minimum total sample was obtained by using descriptive categorical formula with a precision of 10% which is equal to 73 samples. The distribution of frequencies and percentages were calculated using Microsoft Excel. This study was conducted after obtaining permission from The Health Research Ethics Committee Faculty of Medicine Universitas Padjadjaran Bandung.

Inclusion criteria of the objects in this study were older adult patients aged ≥ 60 years who were treated at Puskesmas Tanjung Sari from January 1st to December 31st 2013, with diagnosis of hypertension according to Joint National Committee 7 (JNC 7) criteria. The criteria are the results of measurement of systolic blood pressure ≥ 140 mmHg or

diastolic blood pressure ≥ 90 mmHg, whether or not accompanied by other diseases and are given antihypertensive drug. Exclusion criteria of the objects in this study were patients with uncompleted medical records in the first visit.

Study variables observed in this study were gender, number of visits, the degree of hypertension, types of antihypertensive drug, combinations of antihypertensive drugs, and blood pressure control. Gender of the patients was classified as male and female. The number of visits was defined as how many times the patient went to the Puskesmas to control blood pressure, and was divided into only one visit and more than one visit. The degrees of hypertension were classified based on JNC 7 criteria (normal: $<120/80$, prehypertension: $120-139/80-89$, stage 1 hypertension: $140-159/90-99$, stage 2 hypertension: $\geq 160/100$) and were taken in the first visit.⁹ Types of antihypertensive drug and combinations of antihypertensive drugs used were taken in the first visit. Blood pressure control was taken in the last visit of the patients who had more than one visit and used the NICE clinical guideline criteria of hypertension in 2011 (age <80 years: $<140/90$ and age ≥ 80 years: $<150/90$).¹⁰

Results

During the study period from January 1st to December 31st 2013, there were 41,205 patients treated at the Puskesmas Tanjung Sari according to the data obtained from the Summary Report Visit at Puskesmas Tanjung

Table 1 Patient Characteristics

Patient Characteristics	Total (n=180)
Gender	
Male	60 (33.3 %)
Female	120 (66.7 %)
Number of Visits	
Only 1 visit	100 (55.6 %)
> 1 visit	80 (44.4%)
Degrees of Hypertension	
Prehypertension	3 (1.7 %)
Stage 1 Hypertension	25 (13.9 %)
Stage 2 Hypertension	152 (84.4 %)
Types of Antihypertensive Agent	
Single	166 (92.2 %)
Combination	14 (7.8 %)

Table 2 Distribution of Single Antihypertensive Agent

Types of drug	Total (n=166)
HCT (Hydrochlorothiazide)	7 (4.2%)
Reserpine	24 (14.5%)
Amlodipine	3 (1.8%)
Captopril	132 (79.5%)

Table 3 Distribution of Combination of 2 Antihypertensive Agent

Types of drug	Total (n=14)
Captopril + HCT	11
Captopril + Reserpine	1
Reserpine + HCT	2

Sari. Among 41,205 patients, there were 180 older adult patients with hypertension who met the inclusion and exclusion criteria that have been determined.

Based on the distribution of gender, older adult patients with hypertension treated at the Puskesmas Tanjung Sari were mostly women compared to men with a ratio 2:1, who visited only one time to control the blood pressure, and had stage 2 hypertension (Table 1). The use of a single antihypertensive agent in the first visit was higher than a combinations of two antihypertensive agents. These results indicated that more than 75% of patients had stage 2 hypertension and were treated by a single antihypertensive agent.

Based on the distribution of a single antihypertensive agent in the first visit (Table 2), the majority of older adult patients received captopril followed sequentially by reserpine, HCT, and amlodipine.

Most of the older adult patients received combination of captopril and HCT, followed by a combination of reserpine and HCT, and the combination of captopril and reserpine (Table 3).

Based on the distribution of controlled blood pressure, the result indicated that 90% of patients who had more than one visit had uncontrolled blood pressure (Table 4).

Discussion

The results of this study showed that women were the most of the older adults with hypertension. Several factors that cause hypertension in older women who had menopause (postmenopausal) are genetic factors, environmental and the decrease of estrogen levels that can induce endothelial dysfunction, obesity, activation of the Renin-Angiotensin-Aldosterone System (RAAS), and oxidative stress. These factors contribute to the increase of renal vasoconstriction leading to hypertension.¹¹

The number of older adult patients who had only one visit were more than patients who had more than one visit. The results of this study may indicate the low awareness of older adult patients to control their blood pressure. This is consistent with the study by Brindel Pauline et al.¹² that showed that the frequency of visit in older adult patients with hypertension is associated with a high percentage of awareness, treatment and control of blood pressure. But things such as the patient visit which is not recorded at the medical record, the patient changes to private doctors or other health facilities and lack of education about the importance of controlled blood pressure, can cause the likelihood of the

Table 4 Distribution of Controlled Blood Pressure

Blood Pressure	Total (n=80)
Controlled	8 (10%)
Uncontrolled	72 (90 %)

higher number of patient with only one visit.

The majority of patients who received antihypertensive agent in the first visit had stage 2 hypertension. The results are in accordance with the recommendation of 2013 European Society of Hypertension (ESH)/European Society of Cardiology (ESC) guidelines for the Management of Arterial Hypertension that the initiation of antihypertensive drug administration in the older adult is recommended at stage 2 hypertension.¹³

In this study, older adult patients with hypertension mostly received a single antihypertensive agent in their first visit. This is in accordance with AHA 2011 Expert Consensus Document on Hypertension in the Elderly that initiation of antihypertensive drug treatment in the older adult begins with a single drug administration with the lowest dose. The dose gradually increases until it reaches the maximum dose that can be tolerated depending on the response of the patient's blood pressure. However, if the blood pressure is more than 20 or 10 mmHg above the target blood pressure, the treatment should be initiated with two antihypertensive agents.¹⁴

The results of this study showed that a single antihypertensive agent most often given in older adult was captopril. According to the 2013 European Society of Hypertension (ESH)/European Society of Cardiology (ESC) guidelines for the Management of Arterial Hypertension, all antihypertensive drugs recommended and can be used by the older adult, although diuretics and calcium antagonist is recommended in older adult patients with isolated systolic hypertension.¹³ Based on the interview with the doctor on duty at Puskesmas Tanjung Sari, captopril administration was most often because the availability of other antihypertensive drugs at Puskesmas Tanjung Sari was limited in 2013, while after the National Health Coverage (JKN), the availability of antihypertensive agent at Puskesmas Tanjung Sari is amlodipine (calcium antagonists).

The combination of two antihypertensive drugs most frequently used in the older adults was captopril and HCT. Several studies have shown that the combination of ACE-I (Angiotensin Converting Enzyme Inhibitors) and diuretics can lower systolic blood pressure in patients with transient ischemic attack or previous stroke, diabetes, and hypertension patients aged 80 years and over.¹³

Older adult patients with hypertension who achieved target blood pressure in the last visit were 90% with more than one visit. The low number of controlled blood pressure can be caused by the poor compliance.^{15,16} In this study, poor compliance to antihypertensive drugs is likely affected by the lack of patient's knowledge about the importance of blood pressure control, lack of education, long term and continuous treatment. In addition, based on the data from patients' medical record who listed the number of antihypertensive drugs that were given, it can be concluded that the duration of captopril administration as antihypertensive drugs were most often given in 3 or 5 days. Antihypertensive drugs that were given in small numbers caused the patient must often come back to the Puskesmas in order to get an antihypertensive drug again, hence, it may affect patients' compliance. This is consistent with other studies that the factors that contribute to poor adherence to antihypertensive agent include lack of patient understanding of the importance of achieving blood pressure control, lack of education to the patient, access to health facilities, drug adverse effects, drug cost, and low socioeconomic status.¹⁷⁻¹⁹

The conclusion of this study is more than 75% of older adults with hypertension have hypertension stage 2 and are treated by single antihypertensive agent (captopril), and ninety percent of the patients with more than one visit have uncontrolled blood pressure.

The limitation in this study is incomplete data recorded in the medical record at Puskesmas Tanjung Sari, in the form of blood pressure data, diagnosis, and antihypertensive drugs given. Moreover, the medical record-keeping system at Puskesmas Tanjung Sari is not good enough, so it took times when that patients' data were not recorded in the medical record.

It is suggested that the completeness of data in the medical record and medical record-keeping system should be improved in order to ease the monitoring and reporting of treatment and medication at Puskesmas Tanjung Sari. In addition, a primary health care providers and physicians who work in Puskesmas are expected to improve the treatment management of hypertension, especially in the older adults. Suggestion for further study is about factors that influence the number of visits and blood pressure control in older adult patients with hypertension at the Puskesmas Tanjung Sari should be conducted.

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