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Treatment of hypertensive patients in community pharmacies in Yogyakarta

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Abstract

Hypertension is one of the degenerative diseases that has quite high mortality and morbidity. Rational drug management in hypertensive patients has become an increasingly important topic to make optimal use of the treatment to provide the highest possible standard of health care. Continuous assessment of rational drug prescription and use should be carried out in patients. The purpose of this study is to identify the trend of drug prescription and using antihypertensive groups in hypertensive patients in community pharmacies in Yogyakarta in 2024. This study aimed to conduct a retrospective cross-sectional study of prescription patterns in hypertensive patients in the community. The review of drug prescription characteristics includes gender, age, comorbidities, duration of treatment, and number of drugs used. The results showed that 56.06% of hypertensive patients were male patients, the dominant age in this study was over 60 years (59.09%). The duration of treatment in this study was dominated by 5-10 days (79.55%). Hypertensive patients usually have 1-3 comorbidities so that be will affect the treatment received. As many as 84.85% of hypertensive patients use a single hypertension drug. Amlodipine is a CCB group that is the first line of hypertension treatment in the community. The combination of treatments that often used is a combination of the CCB group (amlodipine) with the diuretic group (furosemide).

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Keywords

Hypertensive, Prescribing pattern, Community pharmacies

Introduction

More than one billion people worldwide have hypertension, but only 13% of these can controlling their blood pressure. Currently hypertension is the third largest risk factor for premature death. Approximately one in three persons in the United States who

suffer with hypertension are unaware of their condition and are not receiving treatment to manage it. Keeping the blood pressure under control might help avoid or postpone major health issues like heart attacks, strokes, chronic renal disease, and congestive heart failure, and potentially vascular dementia [1], [2], [3]. The non-communicable diseases particularly hypertension, are on the rise in Indonesia at the moment. The 2018 Riset Kesehatan Dasar data, which indicates that the prevalence of non-communicable diseases has grown in comparison to the 2013 Riset Kesehatan Dasar supports this. Hypertension cases prevalence rise from 25.8% to 34.1%. In Yogyakarta is the fourth highest province for hypertension cases in Indonesia. Based on the measurement results in the 2019 Riset Kesehatan Dasar data, The amount of people with hypertension in DIY is above 30 percent. According to the Indonesian Ministry of Health, the prevalence of hypertension in Indonesia based on diagnosis/medication is 8.84 percent in the population over 18 years old. This means that 1 in 10 Indonesians aged 18 years and over are diagnosed with/take hypertension medication. Particularly in patients who are young or productive, hypertension may result in complications and death. The entire health system, including health, social and economic development, community welfare, is impacted by the large number of unreported instances of hypertension [4], [5].

Pharmacological therapy obtained by patients It can be taken as a combination of antihypertensive medications or as a single medication of antihypertensive drugs. Based on the algorithm compiled by JNC 8 and ACC/AHA hypertension guideline, the earliest therapy is to change lifestyle. If the desired results are not achieved, then drug therapy is needed. In general, the known types of medications that lower blood pressure are diuretics, ACE inhibitors, Angiotensin Receptor Blockers, Calcium Canal Blockers, and Beta Blockers [6], [7], [8]. To accomplish therapeutic goals like managing the blood pressure, both systolic and diastolic, antihypertensive medication required adherence therapy. One of the problems in hypertension therapy is patient non-compliance with lifestyle change therapy and pharmacological treatment [9], [10].

Patient non-compliance with non-pharmacological therapy (lifestyle changes) and pharmacological therapy can be caused by various factors, including patient knowledge and patient communication with health workers [3], [11], [12]. In addition to patient compliance, rational treatment can also affect the treatment of hypertensive patients. Patients must receive drugs that are appropriate for their medical conditions, in dosage that meet their specific needs, for a sufficient amount of time, and at the least expense to them and their community, according to the reasonable medicine use [13]. Decent drug use in the community is still one of the obstacles to treatment because patients tend to use their own drugs without checking to the doctor. As a result, treatment will be haphazard, side effects can occur, irrational treatment that can be detrimental. The purpose of this study is to see the arrangement of rational treatment in the use of antihypertensives in the community.

Method

This type of research is non-experimental analytical research (analytical observational) with a cross-sectional research design using a retrospective data collection method taken from searching medical record documents in the community (Afina Yogyakarta Pharmacy) for a period of 6 months (June - November 2024). The operational definition of this research variable as hypertension therapy is treatment for hypertension patients at Afina Pharmacy using amlodipine with a dose of 5 mg. From a total of 168 hypertensive patients, 132 patients met the requirements for inclusion. Male or female patients with a diagnosis of hypertension who were between the ages of 18 and 65 met the study's inclusion requirements been taking antihypertensive medications for no less than of one month. The data that had been obtained were classified to see Antihypertensive medication usage patterns among hypertensive individuals in the community (Afina Yogyakarta Pharmacy) and then compared with the research standard used. The collected data were processed and analyzed and then presented in descriptive form.

Results and Discussion

In the study conducted, 132 patients were obtained with a distribution of characteristics of 56.06% female; 59.09% patients with age > 60 years; with 1-3 comorbidities; duration of treatment 5 - 10 days and dominated by 84.85 single treatments based on Table 1. There are significant differences in the prevalence of hypertension among men and women. The development of hypertension may also be significantly influenced by gendered variables. Male were more likely than female to have hypertension, according to data from The CONSTANCES cohort in France [14], [15]. In this study there is a difference where in female hypertension patients there are more than male patients. The results of this study differ from other studies from Korea, the US, Sweden and China which show that men have a higher risk of developing hypertension [16], [17], [18], [19]. For young female, high blood pressure may be much more dangerous than for young male. According to the study, female's blood vessels age more quickly than male's, so a 30-year-old female with high blood pressure is likely to experience cardiovascular issues more frequently than a male. For every 10 mmHg increase in systolic blood pressure, cardiovascular disease increases by 15% in male and 25% in female. In a variety of hypertension-mediated disorders, including heart failure, female have a greater disease burden and a different clinical profile. However, compared to male, female show a greater prevalence and awareness of hypertension. This may be because female is more careful in managing their lifestyle which can be a risk factor compared to men. In addition, in male, a history of smoking is a important risk factor for hypertension which can make it more difficult for male to control their hypertension [14].

There is a substantial correlation between age and blood pressure. Absolute blood pressure's age-related trend has been reported in the literature, and it indicates that after the ages of 30 to 40, SBP rises linearly with age. Between the ages of 35 and 79,

the risk of high SBP increased steadily, while the risk of high DBP increased at the same time. After the ages of 50 and 65, the risk of high DBP decreased. For men, SBP risk grows in a sequential manner with age, but for women, it rises nonlinearly [20], [21]. Diabetes and cardiovascular disorders are among the many comorbid conditions for which hypertension is known to be a risk factor. Increase the possibility of cardiovascular events and kidney problems are only a few of the issues associated with hypertension. If no attempt is made to control blood pressure by using medications and a healthy lifestyle, this illness will develop. A higher percentage of participants with comorbidities than those without comorbidities reported having some issues linked to their health-related quality of life [22], [23].

Table 1. Patients' characteristics

Patient characteristics		(n =132) (%)
Gender	Male	58 (43.94)
	Female	74 (56.06)
Age	<20	0
	20-30	4 (3.03)
	31-40	3 (2.27)
	41-50	29 (21.97)
	51-60	32 (48.48)
	>60	64 (59.09)
Comorbid	Without comorbid	78 (59.09)
	1-3 comorbid	54 (40.19)
	>3 comorbid	0
Treatment Duration	<5 days	15 (11.36)
	5 - 10 days	105 (79.55)
	> 10 days	12 (9.09)
Antihypertensive drugs	Single treatment	112 (84.85)
	Combination treatment	20 (15.15)

Based on the antihypertensive drug class in Table 2, there are a number of drug items prescribed at Afina Pharmacy including Angiotensin II Receptor Blockers (ARB), Angiotensin-Converting Enzyme (ACEi), β-Blockers, Calcium-Channel Blockers (CCB), and Diuretics. The results of the study showed that the most single antihypertensive drug therapy came from the Calcium-Channel Blockers (CCB) group, which was 86 prescriptions (65.15%). This is in accordance with other studies that state that the CCB group is more effective in lowering blood pressure compared to diuretics, ACE inhibitors, and ARBs. According to his previous research, it showed that the single antihypertensive drug therapy mostly came from the Calcium-Channel Blockers (CCB) group, namely Amlodipine with 122 prescriptions (35.7%). This is in accordance with the research conducted that the CCB group is more effective in lowering blood pressure and is safer to use in hypertensive patients with other comorbid disease [24].

Based on the management of hypertension therapy JNC 8 in the initial treatment of hypertension does not require two medications combined but only requires single therapy. Combination therapy is used if in patients with single therapy does not show blood pressure achievement. Combination therapy in hypertensive patients who receive the first treatment can also result in a rapid and strong decrease in blood pressure so

that it can result in an uncontrolled decrease in blood pressure. Furthermore, the most common combination of 2 drugs is the combination of CCB and diuretic groups with a presentation (4.55%) [25].

Table 2. Groups of Antihypertensive Drugs

Drug Classes	(n =132)(%)
Monotherapy	
ACEI	1 (0,76)
ARB	2 (1,52)
CCB	86 (65,15)
Diuretic	11 (8,33)
Beta blocker	3 (2,27)
Alpha-2 receptor agonist	9 (6,82)
Combination	
ARB + Diuretic	2 (1,52)
ARB + CCB	5 (3,79)
CCB + Diuretic	6 (4,55)
Beta blocker + Diuretic	1 (0,76)
ARB + CCB + Diuretic	1 (0,76)
Diuretic + Alpha-2 receptor agonist	2 (1,52)
CCB + Beta blocker	2 (1,52)
ARB + Beta blocker	1 (0,76)
ARB + Diuretic + Beta blocker	1 (0,76)

Table 3 explains that according to the characteristics of the use of hypertension drugs at Afina pharmacies in the period August-October 2024, the medicine that is most commonly used was amlodipine as many as 87 recipes because amlodipine is a class of Calcium Channel Blocker drugs which are included in the first line of hypertension therapy.

Table 3. Distribution of patterns of antihypertensive drug use

Drug Classes	Drug	n
ACEI	Lisinopril	1
ARB	Candesartan	10
CCB	Amlodipine	87
	Nifedipine	1
Diuretic	Furosemide	7
	HCT	19
Beta blocker	Bisoprolol	9
Alpha-2 receptor agonist	Clonidine	13

This is consistent with a 2019 study by Tutoli et al. at the Tilamuta Health Center that found amlodipine to be the most often utilized antihypertensive medication, ahead of HCT or captopril. Amlodipine is a calcium antagonist-class antihypertensive medication that can be used alone or in conjunction with other medication classes like beta-blockers, ACE inhibitors, diuretics, or ARA II to treat hypertension. The percentage of

amlodipine administration was 49 (53%) higher than Captopril by 2 people (2%) and hydrochlorothiazide by 2 people (2%). In addition, the most commonly used drug combination is the combination of Bisoprolol and Amlodipine, with 9 people (10%). Both as a monotherapy and in combination, amlodipine has been clinically used to treat hypertension. It has been shown to be safe, effective, and well tolerated in decreasing blood pressure. Hypertension is treated with amlodipine. Amlodipine has a long elimination half-life, a broad distribution volume, and a high bioavailability. It can be used either by itself or in conjunction with other hypertension medications. The half-life of amlodipine in plasma is 35 hours, during which time its concentration falls. Amlodipine lowers blood pressure by relaxing the smooth muscle in the arteries, which lowers peripheral resistance overall. Amlodipine blocks calcium ions from passing through specific cell membranes, which has a stronger effect on smooth blood vessels in muscle cells than on heart muscle cells. The movement of extracellular calcium ions into cells through specific ion channels is necessary for the contractility of the heart muscle and smooth muscle of blood vessels [25].

Conclusion

Hypertension patients at Afina Pharmacy Yogyakarta are mostly female, 74 people (56.06%). The most common type of hypertension medication at Afina Pharmacy is CCB, namely amlodipine with a dose of 86 (65.15%). Amlodipine has a higher effectiveness in lowering blood pressure for those who have hypertension compared to other hypertension drugs.

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