Medicine

Overview of Blood Pressure amongst Hypertension Patients at Kawiley District Kauditan, North Minahasa Regency

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Abstract	Original Research Article

Hypertension is a condition where the blood pressure is elevated. It occurs worldwide with an increasing incidence rate year by year, therefore still is an interesting topic of research as an effort to manage this disease. Long term uncontrolled high blood pressure may lead to several complications such as cardiovascular diseases, kidney disease and stroke. Monitoring blood pressure regularly and patients' adherence to medication will lower the risk of complications. This study aims to explore the blood pressure of patients with hypertension at Kawiley and their adherence to taking anti hypertension drugs. This is an analytical descriptive survey with cross sectional approach. Respondents have been recruited from primary health care facilities. Blood pressures were taken according to standardized operation procedure using a digital measurement. Medication usage have been recorded, tabulated and analyzed. Results show from 54 respondents, consisting of 16 (29.6%) male and 38 (70.4%) female with the average age of 64 years old. Average systolic blood pressure (SBP) for all respondents is 133.5 mmHg and diastolic blood pressure (DBP) is 83.4 mmHg, with no big differences amongst the gender. About 18 respondents have systolic BP higher than 140mmHg (average 148.4mmHg) and 13 respondents with diastolic BP more than 90mmHg (average 94.1mmHg). (41 of the 54 respondents) consistently take their medications as prescribed. Systolic blood pressure of those who are not consistent with their antihypertension medications is greater than 130 mmHg. Most of the respondents only use one type of calcium channel blocker as an antihypertension medication. In conclusion, most respondents stick to taking their medications as directed, and the average blood pressure among respondents with hypertension is within the normal range. It is advised that hypertensive patients periodically check their blood pressure to prevent serious problems.

Keywords: Blood pressure, Hypertension, cardiovascular diseases, kidney disease.

INTRODUCTION

When the systolic blood pressure is greater than 140 mmHg and the diastolic blood pressure is greater than 90 mmHg, hypertension, also known as high blood pressure, is present. According to the Ministry of Health, there are two types of hypertension: primary or essential hypertension, which has an unknown etiology, and secondary hypertension, which has a recognized cause (Kemenkes, 2014). Riskesdas 2018 reported that there was an increase in the prevalence of hypertension in Indonesia by 34.1% compared to the prevalence of hypertension in 2013 which was 25.8%, based on the measurement results in the population aged 18 years of 34.1%, the highest in South Kalimantan (44.1%), while the lowest was in Papua (22.2%). Hypertension occurs in the age group 31-44 years (31.6%), age 45-54 years (45.3%), age 55-64 years (55.2%) (Riskesdas, 2018). In the United States, nearly half of the adult population has hypertension (47% or 116 million people) and only one in four adults (24%) has controlled hypertension, and in 2019 it was the cause of death for 516,955 people (CDC, 2021).

Genetics, alcohol use, and obesity all contribute to primary (essential) hypertension, while

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aortic narrowing, renal parenchymal and vascular disease, endocrine problems, and elevated blood pressure are associated with secondary hypertension (Carretero, 2000). In order for the hypothalamus to process information, send signals to the body via the autonomic nervous system (ANS), and influence the heart rate in the sinoatrial node rhythm (SA), a person with high blood pressure thickens the heart tissue, making it difficult to deliver electrical impulses to the heart. The brain's fight-or- flight mechanism instructs the heart to beat quickly or slowly. Heart rate is influenced physiologically by a number of variables, including age, gender, and circadian rhythm. An increase in heart rate (HR) is associated with an increase in blood pressure, people with hypertension are at 3-4 times higher risk of having an increased heart rate (Dalal, 2019). The cohort study conducted by Chongke Zhong *et al.,* in 2002-2003 on 2530 Mongolian people in China reported that there was coexistence between hypertension and heart rate. This is in line with the results of a study conducted by Schroeder *et al.,* on 15,792 men and women in the age range of 45-64 years, suggesting that individuals with hypertension have heart rate variability (Zhong, 2015), which will affect blood pressure. This study aims to investigate the relationship between several medication-related parameters and blood pressure among hypertension patients.

METHOD

This is an analytical descriptive study using cross sectional approach of hypertension patiens found in Kawiley Village. The respondents were chosen from Kawiley's private primary care clinic. The respondent was given a rest period of 10 minutes after arriving, instructed to wear comfortable clothing, and instructed to sit with their feet flat on the ground while having their blood pressure measured with a digital OMRON HEM-7130. The pressure during the systole and diastole will be noted and summarized for study. Numerous inquiries about their medications have been posed and also examined, such as how many antihypertensive medications have been taken and how frequently the accessible medications have been taken.

RESULT

The recruitment process resulted in 54 respondents who met the criterion for inclusion; there were 16 men (29.6%) and 38 women (70.4%) with an average age of 64 years. The oldest respondent, a male 87 years old, is one of 32 respondents that are over sixty. The average systolic blood pressure (SBP) and diastolic blood pressure (DBP) for all respondents were 133.5 mmHg and 83.4 mmHg, respectively. Average blood pressure among respondents overall was essentially unchanged by gender (Fig. 1). 18 respondents still have SBP greater than 140 mmHg; the average is 148.4 mmHg, while the highest pressure measured was 179 mmHg. Thirteen patients had respondents with DBPs more than 90 mmHg, with an average of 94.1 mmHg. Only six respondents used two different types of anti-hypertension medications, with the majority (66.7%) using calcium channel blockers, some using angiotensin II receptor blockers, and just one using ACE inhibitors. 13 responders do not take their medication as prescribed, and their SBP is higher than 130 mmHg.
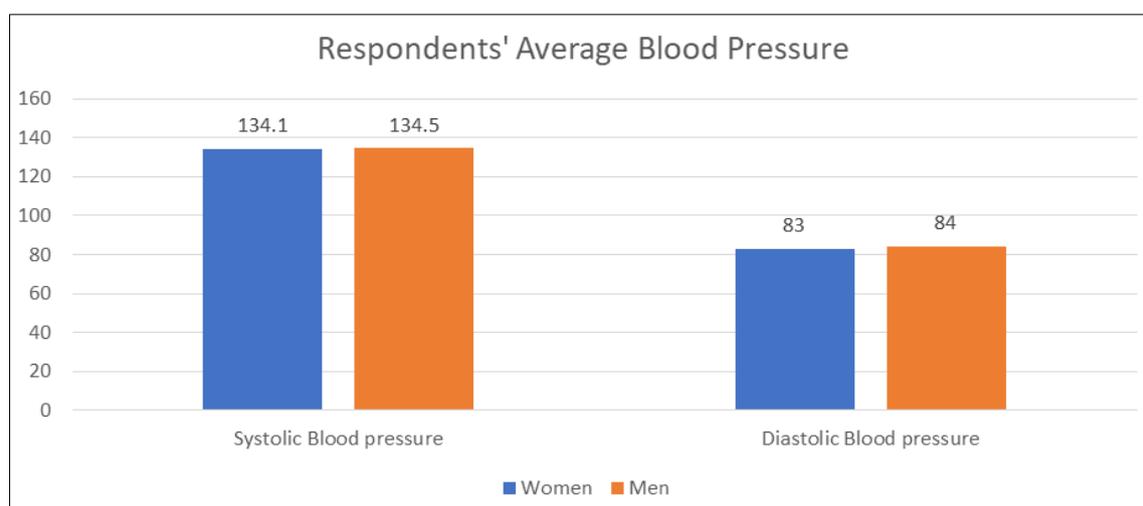
Figure 1: Average Systolic and Diastolic Blood Pressure based on gender.

DISCUSSION

Hypertension still becomes a leading cause of death until recently both in developed countries and underdeveloped one. Many factors contribute to the successful of treatment to lower blood pressure. Most participants in this study are in their sixties, as many studies reported higher blood pressure is more common in the old population (Anggara dan Prayitni, 2013). Overall, the results indicate that both the systolic and diastolic blood pressure averages are within the normal range. Further examination reveals that 33.3% (18 respondents) still have high systolic blood pressure and 24% (11 respondents) have higher diastolic blood pressure, indicating that the current course of treatment

has not yet reached its full potential or that additional contributing factors must be under control.

Mursiani *et al.,* (2017) reported the kind of medicine that have been used mostly are beta-blocker, while in this study, group of calcium channel blocker are medication that have been taken the most by respondents. The same finding is reported by Hapsari and Agusta (2013), who state that patients have received widespread prescriptions for calcium channel blockers. The most commonly prescribed class of antihypertensives, such as candesartan, irbesartan, valsartan, and telmisartan, appears to be employed in inpatient research studies. The types of medications still utilized differ depending on the patient or the healthcare facility. The type of antihypertension medication is primarily chosen based on a physician's assessment.

Compliance to the medications has been shown by 41 respondents (76%), quite higher compare to other findings. Since compulsory health insurance have covered hypertension as a chronic disease, many hypertension patients taking their medication from pharmacy free of charge. Using Morisky Medication Adherence Scale, Mursiany *et al.,* found only 26, 20% patients follow the instruction properly. Osamor and Owum, 2011 reported only 51% of their respondents have high compliance with their medications. Several factors have been identified regarding high self-reported compliance such as regular control with their doctor and having family members or friends who become social support in reminding the respondent about taking medication. Study has been conducted at Community Health Service in Banjarmasin. The result shows adherence to take medication in three categories. High adherence account for 30.9%, medium one is about 45.14% and low adherence is about 24.75% (Ayuchecaria *et al.,* 2018). These various results leaving the space for further and detail research.

CONCLUSION

Overall average of systolic and diastolic blood pressure of hypertension respondents are below 140 mmHg and 90mmhg respectively. Most antihypertension agent is calcium channer blocker and the compliance for taking medicine occurs amongst more than 75% respondents. More research is needed to evaluate other related factors that can be used for controlling hypertension at the community level. Adherence to take antihypertensive medication may be regularly measured by available questionnaire to monitor compliance.

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