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Patterns of Antihypertensive Medication Utilization Among Hypertensive Patients: A Review of Single-Therapy Practices in Outpatient Primary Healthcare Centers

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ABSTRACT
Hypertension, often referred to as "The Silent Disease," presents a significant global health challenge due to its asymptomatic nature and association with severe cardiovascular complications. Effective management of hypertension primarily relies on the administration of antihypertensive drugs, either as monotherapy or combination therapy. This study investigates the utilization patterns of single antihypertensive drugs among hypertensive patients in the outpatient setting of Puskesmas "X" in Solo City. Utilizing a retrospective approach, data from patient medical records were analyzed to examine drug usage patterns and patient responses to therapy. Results revealed a noteworthy preference for combination therapy, with approximately 64.18% of patients opting for this approach. Combination therapy strategies were favored due to their additive and synergistic effects, potential for reducing side effects, and enhanced blood pressure control. Specifically, amlodipine from the calcium channel blocker (CCB) group emerged as the most commonly prescribed single antihypertensive drug, while the combination of amlodipine with candesartan from the angiotensin receptor blocker (ARB) group was the predominant combination therapy. These findings align with previous research, emphasizing the significance of combination therapies in hypertension management..

Keywords:
Hypertension, Antihypertensive Drugs, Monotherapy

INTRODUCTION

Hypertension is defined as an increase in systolic blood pressure greater than 140 mmHg and an increase in diastolic blood pressure greater than 90 mmHg. Because hypertension usually does not exhibit symptoms or only mild symptoms that the body can manage, sometimes blood pressure tests are necessary. This is why hypertension is often referred to as "The Silent Disease" or the hidden disease. Both diastolic and systolic blood pressure components are always associated with hypertension (Marhabatsar et al., 2021). Hypertension is one of the chronic diseases with a continuously increasing global prevalence and is a major risk factor for various serious cardiovascular diseases

(Prasetyawan, F., 2024). Effective management of hypertension is crucial to prevent potentially fatal long-term complications (Nababan, O.A., 2024). One of the key approaches in hypertension treatment is the use of antihypertensive drugs, either in single or combination forms, depending on each patient's needs (Dianati, S., 2022). In primary healthcare facilities such as Puskesmas, hypertension management is often done through the administration of single drugs as initial therapy (Prasetyawan, F., 2021). However, with various factors influencing blood pressure control and treatment response, it is important to understand the patterns of single antihypertensive drug usage among hypertensive patients in Puskesmas outpatient settings (Andriana, D.D., 2018). This research aims to provide a clear overview of how single antihypertensive drugs are utilized in hypertensive patients in the Puskesmas outpatient setting (Annur, A., 2023). Information obtained from this research is expected to provide better insights into hypertension treatment practices at the primary level, as well as aid in making better clinical decisions to enhance effective disease management (Saputri, G.A.R., 2022).

In fact, hypertension doesn't always have clear symptoms, and sometimes these symptoms are only mild. High blood pressure is often associated with hypertension symptoms. Some hypertension symptoms include headaches sometimes accompanied by nausea and vomiting due to increased intracranial pressure, dizziness, fatigue, blurred vision, ringing in the ears, nosebleeds, rapid heartbeat, stress, stroke, and nocturia due to increased kidney blood flow and glomerular filtration. These symptoms can vary from person to person. Therefore, health check-ups are necessary to determine if the body is suffering from hypertension (Rindarwati, Fadillah and Hakim, 2023).

Angiotensin Converting Enzyme converts angiotensin I to angiotensin II, which is the underlying mechanism of hypertension (ACE). The important physiological function of ACE is blood pressure regulation. Angiotensinogen, produced in the liver, is present in the blood. Additionally, renal renin will be converted to angiotensin I by the hormone. Angiotensin I is converted to angiotensin II in the lungs by ACE. Angiotensin II primarily acts through two mechanisms to increase blood pressure (Marhabatsar and Aisyah, 2021).

There are various different pharmacological and non-pharmacological ways to treat hypertension currently (Muslikh, F. A., 2024). Non-pharmacological therapy consists of lifestyle modification by reducing alcohol consumption, regular exercise, stress avoidance, and consumption of high fruits, vegetables, low-fat milk, and high-protein foods such as poultry, fish, and legumes. Nuts), consuming less salt, boiling water with bay leaves, deep and regular breathing, as well as finger grip relaxation techniques (Fuad et al., 2022).

When starting pharmacological therapy for hypertension, one drug is used at a time. Monotherapy usually decreases systolic blood pressure by 7–13 mm Hg and diastolic blood pressure by 4–8 mm Hg, depending on the initial blood pressure level. The first-line treatment choice for primary hypertension varies somewhat. In the past, JNC VII recommendations suggested the use of moderate-dose thiazide. For individuals who are not black-skinned, JNC VIII currently recommends ACE inhibitors, ARBs, low-dose thiazide diuretics, or CCBs. First-line treatment for black-skinned patients is usually low-dose thiazide diuretics, or CCBs. However, based on specific indications, recent recommendations in Europe suggest initiating treatment with one of five drug classes: ACE-inhibitor, ARB, low-dose thiazide diuretics, CCB, or α-blocker (Kandarini and Hypertension, 2019).

WHO recommends monotherapy with one of the following drug classes: ACE Inhibitor, Calcium Channel Blocker (CCB), Alpha Blocker, Beta Blocker, Diuretic, and Beta Blocker while using antihypertensive drugs. It is possible to use them as monotherapy because their side effects are disruptive and do not induce tolerance when consumed long-term (Ulfa and Kautsar, 2019). Given this context, researchers are interested in conducting a study titled Factors Affecting the Utilization of Health Services for Hypertension in Puskesmas "X" Pematang Siatantar District.

METHODS

This study is an in-depth descriptive study aimed at investigating the effectiveness of antihypertensive drugs in hypertensive patients receiving treatment at the outpatient facility of Puskesmas "X" in Solo City. A retrospective approach was used, collecting data from patient medical records to examine past occurrences (Prasetyawan, F., 2024). Hypertensive patient data was meticulously collected from outpatient records during September 2023, and these records provided valuable information about drug usage patterns and patient responses to therapy. The study population consisted of all hypertensive patients actively taking antihypertensive drugs at Puskesmas "X".

For the purpose of the study, 67 samples of hypertensive patient medical record data representing various patient profiles and therapies were selected. The data processing technique applied involved using the statistical software SPSS, allowing for a more in-depth analysis of the correlation between drug types, dosages, and patient responses. Paired Samples Test was chosen as the primary analytical tool to compare the effectiveness of various types of antihypertensive drugs in the same setting, while also considering drug combinations within each group.

The results of this research are expected to provide better insights into hypertension treatment practices at the outpatient facility level, as well as establish a stronger foundation for better clinical decision-making in hypertension management. Additionally, the findings from this study can also be a significant contribution to the development of more effective and individualized treatment guidelines for hypertensive patients.

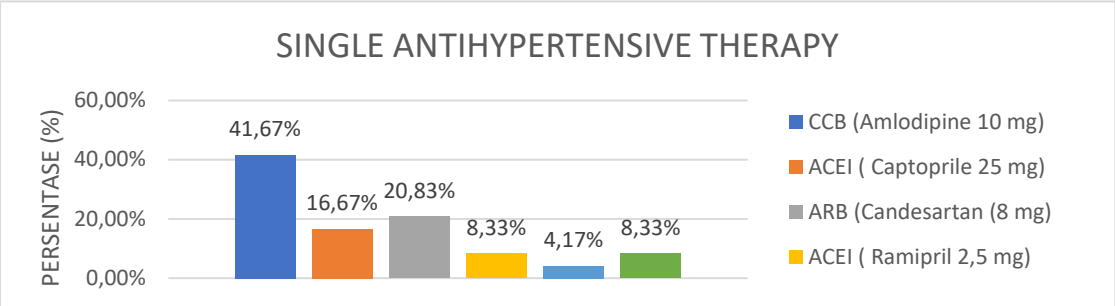
RESULTS AND DISCUSSION

The analysis results regarding the effectiveness of antihypertensive drug usage in this study depict an intriguing pattern: a significant portion of hypertensive patients tend to utilize combination therapy. Data indicates that approximately 64.18% of the patient population adopts a combination treatment pattern, while only about 35.82% opt for single-drug therapy. This finding signifies that combination therapy strategies are the preferred choice in managing hypertension at the outpatient facility of Puskesmas "X" in Solo City.

The approach of combination therapy in hypertension treatment has garnered substantial support from previous studies, and the findings in this research reinforce this belief. Reasons supporting this approach include the additive and synergistic effects of drug combinations, the potential for complementarity in quality, and the ability to reduce the risk of side effects that may occur with monotherapy. Additionally, combination drugs can synergistically act on different organs in the body, enhancing the effectiveness of blood pressure control.

Conceptual support for combination therapy is further strengthened by Udayani et al.'s (2018) study, which highlights the significant benefits of using combination drugs in hypertension management. They demonstrate that the use of fixed-dose combinations can enhance patient compliance rates by reducing the number of tablets that need to be consumed daily and optimizing the proper dosage for blood pressure control. As a result, these findings underscore the importance of combination therapy strategies in hypertension management and provide a solid foundation for healthcare practitioners to consider this approach in designing optimal treatment plans for their patients.

Table 1. The Utilization of Single Antihypertensive Drug Therapy



Utilization of Single Antihypertensive Drugs in Hypertensive Individuals Registered at Puskesmas "X" in Solo City. With the administration of amlodipine, the CCB group is the most commonly used drug, accounting for 41.67% (10 patients) out of 25 responses. Based on research conducted at RSUD Sultan Syarif Mohamad Alkadrie, the most commonly used monotherapy antihypertensive group is the CCB (Calcium Channel Blockers) group containing amlodipine at 50.00%. The CCB group can lower blood pressure by reducing peripheral blood vessel resistance and relaxing arteriolar smooth muscle, thereby reducing blood pressure (Khairiyah et al., 2022).

The drug group most frequently prescribed to hypertensive patients sampled at Puskesmas "X" in Solo City is CCB + ARB, where 46.51% of patients receive a prescription for Amlodipine + Candesartan. Based on research conducted at Puskesmas Kebun Handil in Jambi City in 2020, the most popular combination of antihypertensive drugs is CCB and ARB, given in 56% of cases. This study is consistent with that research. Angiotensin Receptor Blockers (ARBs) cause vasodilation and inhibit aldosterone secretion, similar to ACEIs. However, because this drug does not alter bradykinin metabolism, it appears not to cause side effects often caused by ACE inhibitors, such as angioedema and dry cough (Azis Islama et al., 2021).

CONCLUSION

In this study, the analysis of antihypertensive drug usage reveals an interesting trend where the majority of hypertensive patients prefer combination therapy over monotherapy. The data shows that approximately 64.18% of the total patients use combination drugs, while only about 35.82% use single drugs. This finding emphasizes that combination therapy strategies are the primary choice in hypertension management at Puskesmas "X" in Solo City. This approach to combination therapy is supported by numerous previous studies, highlighting the benefits of additive and synergistic effects of drug combinations, the potential to reduce side effects, and the ability to effectively enhance blood pressure control. The research also highlights specific patterns in the usage of single

antihypertensive drugs, where amlodipine from the CCB group emerges as the most preferred choice. Similarly, the combination of amlodipine with candesartan from the ARB group is the most commonly prescribed, consistent with findings from previous research.

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REFERENCE

Andriana, D. D., Utami, E. D., & Sholihat, N. K. (2018). Evaluasi penggunaan obat antihipertensi pada pasien pre-eklampsia rawat inap di RSUD Prof. Dr. Margono Soekarjo Purwokerto. *Acta Pharmaciae Indonesia: Acta Pharm Indo*, 6(1), 29-39.

Annur, A. (2023). *Evaluasi Kesesuaian Dan Efektivitas Penggunaan Obat Antihipertensi Pada Ibu Hamil Dengan Preeklampsia Di Rumah Sakit Pku Muhammadiyah Gamping* (Doctoral dissertation, Universitas Muhammadiyah Yogyakarta).

Azis Islama, M. et al. (2021) "Profil Penggunaan Obat Antihipertensi Pada Pasien Hipertensi Di Puskesmas Kebun Handil Kota Jambi 2020," *Jurnal Farmasi Etam*, 1(2), pp. 72–81. Available at: https://doi.org/10.52841/jfe.v1i2.

Dianati, S., Prasetyawan, F., Dewantara, A. A., & Prasetya, D. Y. (2022). Analisis Efektivitas Biaya Antihipertensi Oral Candesartan Dan Amlodipin Pada Pasien Hipertensi Rawat Inap Rs Bhayangkara Kediri. *Java Health Jounal*, 9(1).

Fuad, M. et al. (2022) Terapi Non Farmakologi pada Hipertensi, *Jurnal Untuk Masyarakat Sehat (JUKMAS)* e-ISSN. Available at: http://ejournal.urindo.ac.id/index.php/jukmas.

Kandarini, Y. and Hipertensi, D. (2019) *Tatalaksana Farmakologi Terapi Hipertensi*.

Khairiyah, U., Akib Yuswar, M. and Purwanti, N.U. (2022) "Pola Penggunaan Obat Antihipertensi Pada Pasien Hipertensi di Instalasi Rawat Jalan Rumah Sakit," *Journal Syifa Sciences and Clinical Research (JSSCR)*, 4(3), pp. 609–617. Available at: https://doi.org/10.37311/jsscr.v4i3.15446.

Kusumawaty, J., Hidayat, N. and Ginanjar, E. (2016) "Hubungan Jenis Kelamin dengan Intensitas Hipertensi," *Mutiara Medika*, 16(2), pp. 46–51.

Marhabatsar, N.S. and Aisyah, ST.S. (2021) "Review: Penyakit Hipertensi Pada Sistem Kardiovaskular," Journal UIN Alauddin Makassar, *pp*. 72–78. Available at: http://journal.uin-alauddin.ac.id/index.php/psb.

Muslikh, F. A., & Prasetyawan, F. (2024). Update On The Pharmacological Activity Of Vincristine From Tapak Dara (Catharanthus Roseus L.). *Jurnal Intelek Dan Cendikiawan Nusantara*, 1(1), 38-43.

Nababan, O. A., Oktadiana, I., Prasetyawan, F., Saristiana, Y., Muslikh, F. A., & Mildawati, R. (2024). Evaluasi Penggunaan Obat Pada Pasien Hipertensi Rawat Jalan Di Puskesmas "X" Kota Solo. *Jurnal Media Akademik (JMA)*, 2(2).

Prameswari, D.P. and Rahayu, T.S. (2020) "Afektivitas Model pembelajaran Cooperative Learning tipe Make A Match dan Numbered Head Together: Kajian Meta- Analisis," *Jurnal Ilmiah Pendidikan Profesi Guru*, 3(1), pp. 202–210.

Prasetyawan, F., Henniwati, H., Inti, S., & Nita, N. (2021). Studi Penggunaan Obat Anti Hipertensi Pada Pasien Preeklamsia Di Instalasi Rawat Inap Rs Aura Syifa Kediri. *Java Health Jounal*, 8(2).

Prasetyawan, F., Saristiana, Y., Muslikh, F. A., Widyoko, W. H., Arifin, C., & Rofiq, A. (2024). The Comparative Effectiveness of Angiotensin II Receptor Blockers and Angiotensin-Converting Enzyme Inhibitors in Outpatient Hypertensive Patients at Community Health Centers. *International Journal of Contemporary Sciences (IJCS)*, 2(1), 21-30.

Prasetyawan, F., Serdiani, S., Arief, I., Anggraini, R., Sarifudin, B. A., Suhery, D., ... & Syavardie, Y. (2024). *Manajemen Farmasi*. Penamuda Media.

Rindarwati, Y.A., Fadillah, R.N. and Hakim, I.M. (2023) "Pengaruh Pendidikan Terapi Non Farmakologi pada Pasien Diabetes Melitus," *Jurnal Ilmiah Kesehatan Delima*, 5(2), p. 63. Available at: https://doi.org/10.60010/jikd/v5i2.97.

Saputri, G. A. R., Ulfa, A. M., & Jannah, M. (2020). Evaluasi Rasionalitas Penggunaan Obat Antihipertensi Pada Pasien Preeklampsia Rawat Inap Di Rsud Jend. Ahmad Yani Metro Periode Tahun 2019. *Jurnal Farmasi Malahayati*, 3(2), 139-150.

Udayani, N.N.W., Riastini, N.W. and Putra, I.M.G.S. (2018) "Perbedaan Efektivitas Penggunaan Obat Amlodipin Tunggal Dengan Kombinasi Amlodipin dan Lisinopril Pada Pasien Hipertensi Rawat Inap di RS 'X' Tabanan Tahun 2017," *Jurnal Ilmiah Medicamento*, 4(2), pp. 128–133.

Ulfa, I. and Kautsar, A.P. (2019) "Drug Utilization Reaserch Obat antihipertensi Pada Pasien Rawat Jalan Tahun 2018 di Rumah Sakit Paru Dr H A Rotinsulu Dengan Metode ATC/DDD: Cross-Sectional Study," *Farmaka*, 17(2), pp. 71–79.

Wulandari, A., Atika Sari, S. and Keperawatan Dharma Wacana Metro, A. (2023) "Penerapan Relaksasi Benson Terhadap Tekanan Darah Pada Pasien Hipertensi di RSUD jendral Ahmad Yani Kota Metro tahun 2022," *Jurnal Cendikia Muda*, 3(2).