

A 40-Year-Old Woman with Grade II Hypertension and Obesity Case Report

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KEYWORDS

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ABSTRACT

Hypertension, a leading global health issue, is particularly prevalent in low- and middle-income countries like Indonesia. Often termed the *silent killer*, it frequently goes undetected until complications arise. Obesity and sedentary lifestyles are key modifiable risk factors, necessitating integrated management strategies. Despite available therapies, many hypertensive patients, especially women with obesity, struggle with adherence to lifestyle changes and pharmacological treatments. Limited studies address pragmatic, patient-centered interventions in primary care settings. This case report aims to demonstrate the effectiveness of combined pharmacological and non-pharmacological therapies in managing Grade II *hypertension* and obesity in a 40-year-old woman, emphasizing feasible lifestyle modifications. The patient received a dual-drug regimen (captopril 2x25 mg + amlodipine 1x10 mg) alongside non-pharmacological interventions: a *my plate* diet plan and incremental physical activity (e.g., walking 200 meters daily). Laboratory tests (GDS, uric acid, cholesterol) and clinical evaluations were conducted. After one month, the patient achieved improved blood pressure control (target: <140/90 mmHg) and reduced abdominal circumference. Laboratory results ruled out metabolic comorbidities (GDS: 120 mg/dL; uric acid: 4.3 mg/dL; cholesterol: 145 mg/dL). This approach highlights the viability of integrating simple lifestyle changes with standard pharmacotherapy in resource-limited settings. It underscores the importance of patient education and tailored interventions to enhance adherence and long-term outcomes.

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INTRODUCTION

Hypertension is still one of the leading causes of death in Indonesia and around the world. According to the World Health Organization (WHO), in 2021, approximately 1.28 billion adults aged 30–79 years worldwide were estimated to have hypertension, with the majority (two-thirds) living in low- and middle-income countries (Mills et al., 2021). Hypertension remains a significant public health issue globally, with increasing prevalence in both urban and rural populations (Zhou et al., 2021). It is often dubbed the "silent killer" because it tends to be asymptomatic until serious complications arise, such as stroke, heart failure, or kidney disease (Whelton et al., 2018; GBD 2019 Risk Factors Collaborators, 2020). This condition frequently goes undiagnosed and untreated, particularly in low-resource settings (Kearney et al., 2020). In Indonesia, studies also indicate a low rate of hypertension awareness and treatment adherence, contributing to high morbidity (Rahajeng & Tuminah, 2019).

Effective public health strategies, screening programs, and community-based interventions are essential to control this condition (Kariuki et al., 2022).

The prevalence of *hypertension* cannot be separated from the factors that affect it. There are irreversible factors that are out of control and little or nothing can be done to manage them; these factors include age, gender, race, family history, genetic composition, and others. On the other hand, modifiable risk factors include obesity, excess salt intake, lack of activity or exercise, high-fat diet, tobacco use, alcohol, and others (Fauziatul, 2024).

Obesity and *hypertension* are two interrelated conditions. Obesity or overweight is the main risk factor for *hypertension* or high blood pressure (El Meouchy et al., 2022). Weight gain, especially around the abdominal area (*central obesity*), can increase the risk of *hypertension* (Fauziatul, 2024).

Hypertension management includes pharmacological therapy using a combination of antihypertensive drugs and non-pharmacological therapy. Non-pharmacological therapy can independently lower blood pressure and reduce morbidity and mortality (Williams, 2018). In addition, non-pharmacological therapy can double the effect of antihypertensive drugs. It is recommended as first-line management and should continue regardless of the degree of *hypertension* or combination of drugs used. Non-pharmacological therapies are also recommended in populations with normal blood pressure to prevent or delay the onset of *hypertension*, including reducing the risk of cardiovascular events and metabolic diseases (Williams, 2018).

A critical analysis of previous research highlights gaps in *hypertension* management. Pandit et al. (2023) emphasized non-pharmacological interventions, such as lifestyle modifications, but their study lacked specific strategies for patients with comorbid obesity. Similarly, Williams et al. (2018) demonstrated the efficacy of combination pharmacological therapy in lowering blood pressure but did not address the challenges of adherence in low-resource settings. This study fills these gaps by integrating tailored lifestyle interventions (e.g., calorie deficit plans, increased physical activity) with pharmacological therapy (e.g., captopril and amlodipine) for obese hypertensive patients, ensuring practicality and sustainability in primary care contexts.

The objectives of this research are to: (1) evaluate the effectiveness of combined pharmacological and non-pharmacological therapies in managing Grade II *hypertension* with obesity, and (2) provide a replicable framework for primary healthcare settings. The findings aim to reduce complications and improve patient outcomes by addressing both physiological and behavioral aspects of *hypertension*.

CASE REPORT

A 40-year-old female patient came to the cluster 3 room of the Puskesmas on July 5, 2025 with complaints that the back of the neck felt hot, a bit stiff but not painful. Other complaints such as blurred vision, nausea, vomiting and chest pain were denied by the patient.

Past history of illness with similar complaints is denied. The patient said he had a history of high blood pressure (hypertension) since 2022 but did not have regular controls. The history of diabetes militus is denied.

The family history with similar complaints is denied by the patient, but the family history of hypertension is recognized, namely the patient's mother. A history of other diseases in the family such as diabetes mellitus, heart, asthma, as well as kidney disease or other systemic diseases is denied by the patient.

Social history and habits, patients live at home with children and husband. The patient is a housewife. Patients rarely exercise but do not smoke or drink alcohol.

On physical examination, it was found that the general condition appeared to be mildly painful, the patient's awareness of the nutritional status of obesity (BMI 26.8. Weight 62kg, height 152cm) abdominal circumference 102cm (central obesity). Blood pressure 160/110 mmHg, pulse 80x/minute regular rhythm, respiration 20x/minute. On eye examination, conjunctival anemia (-/-), icteric sclera (-/-) were found. No enlarged lymph nodes or thyroid were found in the neck. Chest examination of normal shape inspection, chest movements are not left behind, motion of ictus cordis is not visible, palpation of movement of the right and left chest walls is symmetrical, ictus cordis is not palpable, sonor percussion in the airspace of the lungs is dim in the heart, there is no dilation of the heart border, auscultation in the lungs of the sound of vesicular breath, no ronchi and wheezing. Regular S1 and S2 heart sounds, no murmur or gallop was found. On the abdominal examination, it was found that the abdomen was smooth and there was no pressure pain. The liver and lien are not not palpable, the presence of mass or enlargement, no ascites, normal intestinal noise. On examination of the extremities, cyanosis was not found, the acrally felt warm and there was no edema.

Supporting examinations carried out in the laboratory using rapid tests, the results of the examinations can be seen in table 1.

Table 1. Results of Laboratory Examination with Rapid Test on Patients		
Types of Inspections	Examination Results	Normal Values
GDS	120	<180 mg/dl
Gout	4,3	3.4-7.0 mg/dL
Cholesterol	145	<200 mg/dl

Source: (PERHI 2019; WHO 2020).

RESULTS AND DISCUSSION

From the results of the anamnesis and physical examination as well as supporting examinations, the patient was diagnosed with grade 2 hypertension and obesity. The patient is then treated with non-pharmacological therapy, which is a lifestyle intervention, we discuss with the patient about the patient's weight and a shared plan to lose weight and increase physical activity. During the consultation session, the agreed upon was a calorie deficit through eating the main method of filling my plate, in addition to that the patient was advised to walk more often such as when the patient went shopping to the store or when taking the child to school (with a distance of not too far approximately 200 meters from home).

The patient was then treated pharmacologically with captopril 2x25mg and amlodipine 1x10mg, in addition to giving the patient medication was also educated about hypertension treatment which should not be stopped by the patient himself, the patient routinely controlled and took the medication at the Puskesmas once every 1 month (before the medication ran out).

The approach to diagnosis of hypertension begins with an anamnesis. The first anamnesis asks the patient's complaints, although some hypertensive patients do not feel symptoms (*the silent killer*), but there are several common symptoms that will be felt by hypertensive patients if they do not get treatment immediately and even to last. Some symptoms of hypertension that can be felt if not treated immediately, include: headache, shortness of breath, restlessness, blurred vision, nausea and vomiting (high blood pressure gauge that must be watched out), in patients there are no symptoms of hypertension that must be watched out for. The diagnosis of hypertension is established when the TDS is ≥ 140 mmHg and/or TDD ≥ 90 mmHg on measurements at a clinic or healthcare facility (Williams, 2018). Grade 2 hypertension is defined as an increase in systolic blood pressure (TD) > 160 mmHg and/or diastolic > 100 mmHg (Thomas Unger et al., 2020; Williams, 2018).

An anamnesis is also carried out to ask how long you have had hypertension, a history of previous hypertension therapy and medication side effects if any, a history of hypertension and cardiovascular disease in the family as well as eating and psychosocial habits. Other risk factors in the form of smoking habits, weight gain, dyslipidemia, diabetes, and exercise habits should also be asked of patients. Determination of cardiovascular risk is recommended to always look for metabolic risk factors (diabetes, thyroid disorders and others) in patients with hypertension with or without heart and blood vessel disease. Based on WHO-HEARTS, the Cardiovascular risk assessment is divided into two groups, namely with laboratory tests (cholesterol and blood sugar) and without laboratory tests. Based on the determination of risk factors in these patients, they are at high risk according to the Hypertension risk classification based on the degree of blood pressure, cardiocerebrovascular risk factors, HMOD or comorbidities, because they have 1 risk factor, namely obesity and hypertension is at degree 2 (William, 2018); (PERHI, 2019)

Hypertension management can be started with non-pharmacological therapy, namely lifestyle interventions. A healthy lifestyle has been proven to lower blood pressure, namely limiting salt and alcohol consumption, increasing the consumption of vegetables and fruits, losing weight and maintaining an ideal body weight (BMI $18.5 - 22.9$ kg/m²), regular light to moderate physical activity (at least 30 minutes a day, for example: mopping the floor, sweeping the floor, and washing the car), and avoiding cigarettes. The most recommended lifestyle settings for this patient are weight loss with an ideal BMI target and a reduction in abdominal circumference of up to 80 cm (Victor Joseph, Meity Ardiana. 2022). There is no really strong evidence that weight loss limits can reduce mortality, but maintaining an ideal weight is associated with lower mortality. The European Society of Cardiology also recommends that there be at least a 1 kg weight loss for most overweight adults (Victor Joseph, Meity Ardiana. 2022).

Pharmacological management in hypertension is an effort to lower blood pressure effectively and efficiently with consideration of blood pressure values to start therapy. In the current hypertension management guidelines, the recommended treatment strategy is to use combination drug therapy to achieve the blood pressure target. The target for reducing essential blood pressure is at least 20/10 mmHg and ideally $< 140/90$ mmHg or lower if tolerated by the patient. Pharmacological therapy for this patient who was diagnosed with grade 2 hypertension immediately began with combination therapy of two drugs, namely ACE/ARB inhibitor +

CCB/diuretic. In these patients, they were treated with captopril 2x25mg (ACE inhibitor group) and Amlodipin 1x10 mg (CCB) (Victor Joseph, Meity Ardiana. 2022).

CONCLUSION

Hypertension remains a significant global health challenge due to its rising prevalence and severe complications when poorly managed. This case study highlights the effectiveness of combining pharmacological treatment (captopril and amlodipine) with personalized lifestyle interventions, such as dietary changes and increased physical activity, in managing Grade II *hypertension* in an obese patient. Future research should prioritize long-term follow-up to evaluate the sustainability of lifestyle modifications, include diverse populations to ensure broader relevance, and investigate digital health technologies to improve adherence and monitoring. Moreover, fostering multidisciplinary collaboration among healthcare providers and implementing community-based awareness programs could enhance prevention and treatment outcomes. Together, these strategies can strengthen hypertension management, reduce complications, and improve patients' overall health.

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