A Case Study: The Vicious Cycle of Headache, Uncontrolled Hypertension, and Paracetamol in 49-Year-Old Woman

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ABSTRACT

Background: Hypertension is a chronic condition that often presents without clear symptoms, but may cause complaints such as headaches. Many individuals with hypertension manage these symptoms independently using over-the-counter medications like paracetamol, without addressing the underlying cause. This case report aims to describe the clinical course of uncontrolled hypertension, recurrent headaches, and habitual paracetamol use.

Case Illustration: A 49-year-old woman with a history of hypertension experienced recurrent headache and self-medicated with paracetamol without a prescription. The patient demonstrated poor adherence to antihypertensive therapy and maintained an unhealthy lifestyle, including frequent sleep deprivation, work-related stress, regular consumption of coffee, tea, and fried foods. Clinical evaluation revealed elevated blood pressure of 140/100 mmHg.

Discussion: Non-adherence to antihypertensive treatment and unhealthy lifestyle choices were major contributing factors that exacerbated the patient's condition. The use of paracetamol as a symptomatic treatment masked the underlying problem and poses long-term risks to organ function. Persistent headache may serve as a clinical indicator of uncontrolled blood pressure due to irregular therapy.

Conclusion: Patients with hypertension require comprehensive management, including lifestyle modification, consistent adherence to medication, and education on the risks of self-medication. The use of symptomatic drugs such as paracetamol without medical

supervision may worsen the condition if not accompanied by adequate blood pressure control.

Keywords: Hypertension, Headache, Paracetamol, Woman

Introduction

Hypertension, or high blood pressure, is a condition in which the pressure within blood vessels exceeds normal limits. There are two components in blood pressure measurement: systolic pressure (when the heart contracts) and diastolic pressure (when the heart rests). An individual is considered hypertensive if their blood pressure consistently measures 140/90 mmHg or higher.[1] Hypertension is a leading cause of premature death worldwide. It is estimated that 1.28 billion adults aged 30–79 years globally suffer from hypertension.[2] The prevalence of hypertension in Indonesia is 34.1%, a significant increase from 25.8% in 2013. It is estimated that only one-third of hypertension cases in Indonesia are diagnosed, while the rest remain undetected.[3]

Hypertension is often asymptomatic or presents with non-specific symptoms, making it difficult to detect without objective medical examination. When symptoms do appear, they are usually associated with elevated blood pressure, though manifestations can vary among individuals. Common symptoms include headache—sometimes accompanied by nausea and vomiting due to increased intracranial pressure—vertigo, fatigue, visual disturbances, tinnitus, epistaxis, palpitations, stress, and in severe cases, stroke. Nocturia may also occur due to increased renal blood flow and glomerular filtration.[4]

One of the most frequently reported symptoms among hypertensive patients is headache. To alleviate this discomfort, many patients resort to over-the-counter medications such as paracetamol. Paracetamol (acetaminophen) is a non-narcotic analgesic that works primarily by inhibiting prostaglandin synthesis in the central nervous system. It is categorized as an over-the-counter drug in Indonesia. Besides its analgesic properties, it is also used as an antipyretic and anti-inflammatory agent.[5] Its analgesic mechanism involves blocking peripheral nerve signals to the dorsal horn by inhibiting TRPA1 receptors, reducing reuptake of endogenous cannabinoids or vanilloid anandamide, and downregulating the response of nociceptive neurons via the TRPV1 pathway (central pain inhibition).[6]Given the high prevalence of hypertension and the widespread use of over-the- counter medications like paracetamol to relieve related

symptoms, this case report aims to describe the clinical course of uncontrolled hypertension, recurrent headaches, and habitual paracetamol use. This study seeks to highlight the potential risks of symptom-oriented self-medication and comprehensive evaluation in patients with chronic conditions such as hypertension.

Case Illustration

A 49-year-old woman who worked as a domestic helper, presented with complaint of frequent headache that had been occurring over the past year. The symptoms typically appeared before bedtime, after engaging in physical activity, or following work. The patient reported that the headache was quite bothersome, significantly interfering with her ability to perform daily tasks. To relieve the symptoms, she self-medicated with an over-the-counter drug, Bodrex®, which contains paracetamol, without any prescription or medical consultation at the time of symptom onset.

The patient had a known history of hypertension and stated that both of her parents also suffered from the same condition. Although she had previously sought medical attention and was prescribed antihypertensive medication, she did not take it regularly and failed to attend routine follow-up visits to healthcare facilities. There was no history of diabetes mellitus. Additional risk factors identified included frequent sleep deprivation—sleeping 4-5 hours per day accompanied by difficulty falling asleep—work-related stress, regular consumption of coffee, tea, and fried foods.

Vital signs examination revealed a body temperature of 36.6°C, respiratory rate of 21 breaths per minute, pulse rate of 84 beats per minute, and blood pressure of 140/100 mmHg. Other physical examination findings are normal. These findings suggest that the patient's headache is most likely associated with uncontrolled hypertension, further exacerbated by unhealthy lifestyle habits and non-adherence to prescribed treatment and routine medical monitoring.

Discussion

Hypertension is a condition heavily influenced by lifestyle factors, including sleep deprivation, stress, excessive consumption of coffee and tea, and high-fatdietary patterns. Chronic sleep deprivation can disrupt the body's circadian rhythm, which plays a key role in regulating blood pressure, thereby increasing the risk of developing hypertension. Work-related stress has been shown to activate the

sympathetic nervous system and elevate cortisol levels, which in turn leads to chronically elevated blood pressure.[7] Additionally, caffeine from coffee and tea may cause vasoconstriction and excessive cardiac stimulation, increasing heart rate and blood pressure. Fried foods typically contain high amounts of salt and trans fats, which worsen lipid profiles and elevate blood pressure when consumed excessively.[8] Hypertension is often referred to as the "silent killer" because it may remain asymptomatic for years. When symptoms do appear, they are generally due to vascular damage and may include headache, restlessness, facial flushing, neck stiffness, heaviness in the nape, tinnitus, insomnia, shortness of breath, fatigue, visual disturbances, and epistaxis. Organ-specific vascular damage can present with signs such as retinal hemorrhage and pupil edema. Among these symptoms, headache is one of the most commonly reported by hypertensive patients.[9]

Hypertensive patients who do not adhere to regular medication use are at risk of severe complications due to uncontrolled blood pressure. Irregular medication intake can lead to sharp fluctuations in blood pressure, increasing the risk of heart attacks, strokes, and kidney failure. These adverse outcomes are further exacerbated by additional risk factors such as stress and high salt intake. Studies have demonstrated that medication adherence is critical to successful blood pressure control. Lack of adherence is often linked to insufficient education or limited access to information, which further deteriorates the patient's overall health status.[10]

Persistent headache in hypertensive patients may be an indicator of poorly controlled blood pressure due to non-adherence to antihypertensive therapy. These medications work to stabilize blood pressure; without consistent use, fluctuations in blood flow to the brain can cause chronic headache. Moreover, the body requires time to reach and maintain therapeutic drug levels, and interruptions in medication intake reduce treatment efficacy. Research conducted by Wibrata et al. (2023), which found that 35% of hypertensive patients had been living with the condition for 6–10 years, and 45% reported at least one persistent health complaint—most commonly headache. Additionally, 55% of patients were consuming medications other than antihypertensive. These findings suggest that inadequate focus on consistent antihypertensive therapy may contribute to poor blood pressure control and thepersistence of symptoms like headache.[11] Thus, headache can serve as a clinical marker of irregular antihypertensive therapy.

The use of paracetamol to relieve headache in hypertension is common among

patients who self-medicate. However, long-term use without medical supervision is not recommended. Paracetamol provides only symptomatic relief, reducing headache without addressing the root cause—elevated blood pressure. Long-term use may negatively impact liver and kidney function, especially when combined with antihypertensive drugs. Furthermore, paracetamol lacks antihypertensive properties and may lead to psychological dependence for temporary symptom relief.[12] Therefore, the use of symptomatic medications such as paracetamol should be limited and replaced by comprehensive treatment targeting the underlying cause.

Conclusion

This case highlights the importance of a holistic approach in managing hypertensive patients. Non-adherence to antihypertensive therapy and an unhealthy lifestyle can worsen the condition, result in recurrent complaints such as headache, and increase the risk of serious complications. The use of paracetamol as symptomatic treatment offers only temporary relief and does not address the underlying issue of uncontrolled blood pressure. Hence, patient education, regular medical supervision, and behavioral modification are essential components of effective hypertension management.

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