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Traditional Medicine to Stabilize Blood Pressure in Hypertension Sufferers

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A B S T R A C T

Hypertension occurs when blood pressure exceeds normal limits, with a systolic pressure typically around 140 mmHg and a diastolic pressure around 90 mmHg. One approach to managing blood pressure involves a combination of modern therapies and the utilization of traditional herbal remedies. This study is a literature review aimed at gathering data and sources related to a specific topic from various sources, including journals, books, the internet, and other published works. Several herbal plants, such as dates, boiled celery water, moringa leaves, papaya leaves, ginger, garlic extract, cucumber juice, and carrot juice, can serve as traditional remedies to lower blood pressure. Hypertensive patients may consider using traditional (non-pharmacological) medicine as an alternative for blood pressure reduction.

INTRODUCTION

Hypertension occurs when blood pressure exceeds normal limits, with a systolic pressure of approximately 140 mmHg and a diastolic pressure of approximately 90 mmHg (Nurarif, 2016). Type, sex, weight, age, genetics, salt consumption, physical activity, stress, and medical history such as kidney disease and diabetes mellitus are all factors that contribute to the occurrence of hypertension (Sinubu et al., 2015).

Globally, an estimated 1.28 billion adults aged 30 to 79 years are afflicted with hypertension, with the majority residing in low- and middle-income countries. Alarmingly, nearly half of these individuals (46%) remain undiagnosed, and fewer than half (42%) receive formal diagnoses and treatment. Moreover, a mere one in five adults (21%) with hypertension successfully maintains blood pressure within recommended levels (WHO, 2023).

One effort to control blood pressure could benefit from both modern therapy and one of herbal medicine's traditional uses. Herbal medicine can be used in therapy facilities that provide complementary health services and made available to the public if they want to consume herbs in the same way that subjects do in preventive, promotive, curative, rehabilitative, and palliative efforts (Aditama, 2015). For healing, complementary therapy differs from conventional therapy (Martin, 2016).

Based on the description above, this research aims to explain various types of herbal treatments against disease and hypertension, as well as the contents of the herbal treatments.

METHODOLOGY

Utilizing a descriptive narrative design with a literature review methodology A literature review study is a technique used to collect data or sources related to a specific topic from sources such as journals, books, the Internet, and other published works. The collection of data was accomplished by conducting a literature review using Scopus and Google Scholar to search for literature sources. The author employs the search terms "traditional medicine," "blood pressure reduction," and "hypertension." Literature reviews were synthesized using the narrative method by grouping extracted data similar to the results measured to answer the objectives of research journals that met the inclusion criteria, then collecting and composing a summary of each journal that included the researcher's name, the publication year of the journal, the country of research, the title of the research, the research methods, and a summary of the results or findings.

RESEARCH RESULT

1. Celery Leaves

Boiling water for celery (*Apium graveolens*) can lower blood pressure in hypertensive patients. In this study, patients with hypertension were given 100 grams of decoction celery every morning for five days. The results show a systolic blood pressure drop of 11.33 mmHg and a diastolic drop of 8.67 mmHg on average (Handayani & Wahyuni, 2021).

Stew leaf celery has been shown to lower blood pressure, cause vessel dilation, and inhibit the angiotensin converting enzyme (ACE). Renin-angiotensin system inhibitors can impair kidney function and raise blood pressure. Stew leaf celery has been shown to lower blood pressure, cause vessel dilation, and inhibit the angiotensin converting enzyme (ACE), allowing the gland to pump blood more gradually and lowering blood pressure (Dinar, 2020). Celery also contains n-butylphthalide (NBP), an oily compound whose antihypertensive effect is independent of color (Pratiwi et al., 2019).

2. Moringa Leaves

Moringa contains magnesium, zinc, and vitamin E, all of which help to lower blood pressure while also providing nutrition. Moringa contains 384 mg of magnesium in 100 grams of flour leaves and 2.2 times more bioavailable iron as well. It contains six times more zinc than almonds and is absorbed 6.46 times more in the blood (Isnan & M, 2017).

Moringa leaves are high in potassium, which helps to control sodium levels in the blood, which has implications for high blood pressure. The phytospherol content of Moringa leaves can also replace the role of cholesterol in the body. The consumption of leaf moringa increases blood flow, reducing the risk of deposition of substances that can lead to high blood pressure

According to the researcher's analysis, systolic blood pressure dropped from 153.50 to 129.56 and diastolic blood pressure dropped from 94.38 to 86.25. It is true that drinking boiled water and eating leafy Moringa on a regular basis can lower blood pressure gradually and without side effects (Yanti, 2019).

3. Cucumber

Cucumber consumption has been shown to lower blood pressure (Setiawan & Sunarno, 2022). According to the findings of the study, giving cucumbers in clusters of interventions results in a decrease in blood pressure with a mean of 83.13 mmHg and a group control of 84.38 mmHg.

Cucumber juice has been shown to lower blood pressure because it contains potassium, magnesium, and phosphorus, all of which are effective and capable of treating hypertension. Potassium has the ability to lower blood pressure and increase effect vasodilation, resulting in a decrease in peripheral blood retention and an increase in cardiac output (Ponggohong et al., 2015).

Consuming a lot of potassium will increase its concentration inside fluid intracellularly, so that fluid from part extracellular and lower pressure blood tends to be interesting. Cucumbers also have diuretic properties due to their high of water content, which helps lower blood pressure. Potassium's function is to maintain fluid and electrolyte balance, as well as sour base balance, in conjunction with sodium (Fitrina, 2014).

Cucumbers have a proven influence on the heart, pump potassium and sodium, and have the ultimate calming effect on blood pressure, according to research. That is, drinking cucumber juice can help lower blood pressure or control blood pressure to keep it stable in hypertensive patients.

4. Papaya Leaves

The content of flavonoids and potassium in papaya leaves causes activity decline and high blood pressure. Flavonoids found in pawpaw leaves may lower blood pressure and improve endothelial function. Flavonoids have antioxidant properties that can increase the endothelial synthesis of Nitric Oxide (NO). NO synthesis: causes vasodilation in vascular smooth muscle blood, lowering blood pressure (Machha & Mustafa, 2005).

The potassium content of leaf pawpaw works in the same way as the diuretic thiazide to lower blood pressure. Increased potassium intake causes the body to secrete a large amount of sodium in the urine (Kowalski, 2010). A study show that extract combined papaya leaves with petals flower roselle take effect decline pressure blood. Very good dose in decline pressure blood ie 0.54 mL/200 gBB with time the best treatment for TDS on day 10 and for TDD on day 15 (Rustani et al., 2020).

5. Dates

According to one study, Ajwa dates (*Phoenix dactylifera*) can help lower blood pressure. Giving 100 g of Ajwa dates daily for 6 weeks has a significant effect on blood pressure decline in the elderly. The average systolic and diastolic blood pressures in the group treatment were 14 mmHg and 8.5 mmHg, respectively (Prayoga et al., 2022).

Ajwa dates have Flavonoids include quercetin, orientin, and flavanonen, and flavanone. Flavonoid content in 100 grams of Dates analyzed varied and ranged from 68.88 to 208.53 mg RE. When compared to the fruit cucumber, which also has blood pressure-lowering properties, the content of flavonoids in 100 grams of Ajwa dates is far higher (85 mg/100 ml) (Azis et al., 2018).

When compared to other flavonoids, the flavonoid quercetin has the most consistent effect on lowering blood pressure. In both animals and humans, the flavonoid quercetin can lower blood pressure and the severity of hypertension. For example, the flavonoid quercetin can reduce oxidative stress, disrupt the Renin-Angiotensin system, and improve endothelial or vascular system function.

Quercetin is also known to bind metal ions, e.g., zinc, and can hinder ACE activity in the Renin-Angiotensin System. Effect The antihypertensive quercetin has also been linked to the ability to increase function endothelium via enhancement activity, synthase oxide nitrate endothelium, and oxide nitrate production (Rivera et al., 2008).

6. Ginger

One sign and symptom of hypertension is a painful head. Headaches are caused by atherosclerosis, blood vessel spasms (arterial), and a lack of oxygen in the brain. Non-pharmacological pain relief options include warm compresses of ginger (*Zingiber officinale*). A warm ginger compress, it turns out, can reduce the severity of a painful headache while also providing relaxation for the patient's hypertension.

Compressing warm ginger could relieve tension, reducing the pain felt by hypertensive patients. Compressing warm ginger could reduce pain through step transmission, where the heat generated by the compress could block inflammatory mediators, lowering pain levels in the patient (Desi et al., 2022).

Even at high concentrations, ginger compounds such as gingerol, shangaol, and zingerone have antioxidant, anti-inflammatory, analgesic, anti-carcinogenic, non-toxic, and non-mutagenic effects in pharmacology and physiology. Gingerol and the resulting warm taste of ginger will open blood vessels and smooth blood circulation, allowing for the intake of food and oxygen. becomes better and causes pain to lessen (Desi et al., 2022).

7. Garlic

It is well known that eating white onions on a daily basis may reduce the risk of hypertension and heart disease. Extract onion white old is generally well tolerated and has been used to treat hypertension (Ried et al., 2010). Mechanism antihypertensive onion white possibility involve effect such as prostaglandins, which decrease resistance vessels blood peripheral (Rashid & Hussain Khan, 1985). Compound onion white hinder enzyme angiotensin converter in vitro (Sendl et al., 1992). Extract onion white old increase NO production and activate NOS (Rivlin et al., 2006).

8. Carrot

Carrot juice (*Daucus carota* L.) can help hypertensive patients lower their blood pressure. Carrots have a high potassium content, which is a good mineral for lowering or controlling tension. Potassium has the ability to cause blood vessel vasodilation. Vasodilation of the blood vessels may reduce peripheral pressure while increasing heart bulk, allowing blood pressure to be controlled (Tela et al., 2017).

A study found that acupuncture and herbal therapy in the form of juice made from 200 ml celery (*Apium graveolens* L.) and carrots (*Daucus carota* L.) to drink once in the afternoon could help patients with hypertension, with blood pressure dropping from 159/96 mmHg to 127/83 mmHg (Khasanah et al., 2019).

DISCUSSION

This research reveals the remarkable potential of several natural substances in hypertension management. Celery leaves have demonstrated impressive results in significantly reducing both systolic and diastolic blood pressure among hypertensive individuals. This can be attributed to celery's ability to inhibit the angiotensin-converting enzyme (ACE), promote blood vessel dilation, and contain n-butylphthalide (NBP), an independent antihypertensive compound. Moringa leaves, which are rich in magnesium, zinc, and vitamin E, also play a pivotal role in regulating blood pressure. The substantial potassium content in

moringa leaves helps control sodium levels in the blood, while phytosterols contribute to enhanced blood flow.

Cucumber consumption, results in a significant decrease in blood pressure due to its potassium, magnesium, and phosphorus content. Additionally, its diuretic properties, stemming from its high of water, aid in lowering blood pressure. This research also extends to the antihypertensive properties of papaya leaves, dates, ginger, garlic, and carrot juice.

Papaya leaves, rich in flavonoids and potassium, exhibit the potential to reduce blood pressure by promoting vasodilation and Nitric Oxide (NO) synthesis. Ajwa dates, known for their flavonoid content, particularly quercetin, consistently show blood pressure-lowering effects. Quercetin's mechanisms involve reducing oxidative stress, improving endothelial function, and inhibiting ACE in the Renin-Angiotensin System. Ginger, renowned for its multifaceted health benefits, offers non-pharmacological relief to hypertensive patients by alleviating headaches and promoting relaxation. Garlic, including white onions, has been linked to a decreased risk of hypertension and heart disease. Its mechanisms may involve prostaglandin effects, enzyme inhibition, increased NO production, and NOS activation. Finally, carrot juice, thanks to its potassium content, aids in blood pressure control by inducing blood vessel vasodilation and enhancing cardiac output. These natural ingredients offer a promising avenue for further exploration in hypertension management, although their efficacy and safety require ongoing research and consideration alongside medical guidance.

CONCLUSIONS AND RECOMMENDATIONS

It is hoped that patients with hypertension could use traditional (non-pharmacological) treatments as an alternative for lowering blood pressure. Traditional treatments can include consuming dates, boiling celery in water, using moringa leaves, incorporating papaya leaves, ginger, white onion extract, cucumber juice, and carrot juice.

ADVANCED RESEARCH

This research still has limitations so further research needs to be done on this topic.

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