

Acupressure Therapy and Its Impact on Blood Pressure Control in Hypertensive Patients

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Abstract

Hypertension is one of the most prevalent chronic health conditions worldwide and a major risk factor for cardiovascular diseases, stroke, kidney disease, and premature mortality. Although antihypertensive medications are effective in controlling blood pressure, long-term treatment may be associated with medication-related side effects, poor adherence, and increased healthcare costs. Consequently, there is growing interest in complementary and non-pharmacological interventions such as acupressure to support blood pressure management. Acupressure therapy appears to be a safe, non-invasive, and cost-effective complementary intervention for blood pressure control in hypertensive patients. Its potential to reduce stress and promote physiological relaxation may contribute to improved cardiovascular health. Incorporating acupressure into comprehensive hypertension management programs may help improve patient outcomes and quality of life. However, further large-scale randomized controlled trials are needed to confirm these findings and establish standardized clinical guidelines.

Keywords: Acupressure, Hypertension, Blood Pressure Control, Cardiovascular Health, Complementary Therapy

Introduction

Hypertension, commonly known as high blood pressure, is one of the most prevalent chronic health conditions worldwide and a major contributor to cardiovascular morbidity and mortality. It is characterized by persistently elevated blood pressure levels that place excessive strain on the heart and blood vessels. If left uncontrolled, hypertension can lead to serious complications such as coronary artery disease, stroke, heart failure, kidney disease, and premature death. Due to its widespread occurrence and long-term health consequences, hypertension remains a significant public health challenge globally. According to international health organizations, millions of adults are affected by hypertension, and its prevalence continues to increase because of population aging, urbanization, sedentary lifestyles, unhealthy dietary habits, obesity, and rising stress levels. Hypertension is often referred to as a "silent killer" because many individuals remain asymptomatic until serious complications develop. Consequently, early diagnosis, effective treatment, and continuous blood pressure monitoring are essential for preventing adverse health outcomes. The management of hypertension typically involves lifestyle modifications and pharmacological therapy. Lifestyle interventions such as dietary changes, regular physical activity, weight management, smoking cessation, and stress reduction play a crucial role in controlling blood pressure. In addition, antihypertensive

medications are commonly prescribed to maintain blood pressure within normal limits. Although these treatments are generally effective, some patients experience medication-related side effects, poor adherence, or inadequate blood pressure control despite treatment. These challenges have encouraged the exploration of complementary and alternative therapies to support conventional hypertension management. Acupressure is a non-invasive therapeutic technique derived from Traditional Chinese Medicine (TCM) that involves applying manual pressure to specific points on the body known as acupoints. According to TCM principles, stimulation of these points helps regulate the flow of vital energy, or Qi, and restore physiological balance. From a modern scientific perspective, acupressure may influence the autonomic nervous system, improve blood circulation, reduce stress, and promote relaxation, all of which may contribute to blood pressure regulation. Several studies have suggested that acupressure may have beneficial effects on cardiovascular health by reducing sympathetic nervous system activity, lowering stress hormone levels, and promoting vasodilation. Because psychological stress and anxiety are recognized contributors to elevated blood pressure, interventions that promote relaxation may support better hypertension control. Acupressure is particularly attractive because it is safe, inexpensive, easy to administer, and associated with minimal adverse effects. In recent years, interest in complementary therapies for hypertension has grown among healthcare professionals and patients alike. Acupressure has emerged as a promising adjunctive intervention that may enhance the effectiveness of conventional treatment while empowering patients to participate actively in their own care. However, evidence regarding its effectiveness in blood pressure management remains an area of ongoing research.

Epidemiology and Prevalence of Hypertension

Hypertension, commonly known as high blood pressure, is one of the most prevalent non-communicable diseases worldwide and a leading risk factor for cardiovascular morbidity and mortality. It is characterized by persistently elevated blood pressure levels that increase the risk of heart disease, stroke, kidney failure, and other serious health complications. Due to its widespread occurrence and often asymptomatic nature, hypertension represents a major global public health challenge.

The prevalence of hypertension has increased significantly over the past few decades, largely due to population growth, aging, urbanization, unhealthy dietary habits, physical inactivity, obesity, and increased stress levels. According to global health estimates, more than one billion adults worldwide are living with hypertension, and the number continues to rise. Hypertension affects individuals across all socioeconomic groups and geographical regions, making it a universal health concern.

The prevalence of hypertension varies among countries and populations. Higher rates are often observed in low- and middle-income countries, where rapid urbanization, lifestyle changes, and limited access to healthcare services contribute to the growing burden of the disease. In developed countries, improved awareness, screening programs, and treatment options have helped enhance blood pressure control, although hypertension remains highly prevalent.

Age is one of the strongest determinants of hypertension. The prevalence increases progressively with advancing age due to age-related changes in blood vessel elasticity and

cardiovascular function. While hypertension can occur in young adults, it is more commonly observed among middle-aged and older individuals. In many populations, more than half of adults over the age of 60 years are affected by hypertension.

Gender differences have also been reported in hypertension prevalence. Before middle age, men generally exhibit higher rates of hypertension than women. However, after menopause, the prevalence among women increases substantially, often approaching or exceeding that of men. Hormonal changes, aging, and lifestyle factors contribute to these differences.

Several modifiable and non-modifiable factors influence the prevalence of hypertension. Non-modifiable factors include age, sex, family history, and genetic predisposition. Modifiable risk factors include obesity, excessive salt intake, unhealthy diet, physical inactivity, tobacco use, excessive alcohol consumption, chronic stress, and certain medical conditions such as diabetes and kidney disease.

A major concern in hypertension epidemiology is the large number of undiagnosed and uncontrolled cases. Because hypertension often develops without noticeable symptoms, many individuals remain unaware of their condition until complications arise. This lack of awareness contributes to delayed diagnosis, inadequate treatment, and increased risk of cardiovascular events.

The burden of hypertension extends beyond its prevalence. It is a leading contributor to cardiovascular diseases, stroke, chronic kidney disease, and premature mortality. The condition also imposes substantial economic costs related to healthcare utilization, medication expenses, hospitalization, and loss of productivity. Consequently, hypertension represents a significant challenge for healthcare systems worldwide.

Hypertension is a highly prevalent chronic disease affecting millions of people across the globe. Its increasing prevalence, association with serious health complications, and substantial socioeconomic impact highlight the importance of effective prevention, early detection, and management strategies. Understanding the epidemiology of hypertension provides a foundation for evaluating complementary interventions such as acupuncture therapy, which may contribute to improved blood pressure control and overall cardiovascular health.

Causes and Risk Factors of Hypertension

Hypertension is a chronic medical condition characterized by persistently elevated blood pressure levels. It develops as a result of complex interactions between genetic, physiological, environmental, and lifestyle factors. Although the exact cause of hypertension is not always identifiable, particularly in primary hypertension, several factors have been recognized as contributing to its development and progression.

Causes of Hypertension

Hypertension is generally classified into two main types:

Primary (Essential) Hypertension

Primary hypertension accounts for approximately 90–95% of all cases and develops gradually over time without a specific identifiable cause. It is believed to result from a combination of genetic predisposition, aging, lifestyle factors, and environmental influences that affect blood vessel function and blood pressure regulation.

Secondary Hypertension

Secondary hypertension occurs as a result of an underlying medical condition or the use of certain medications. Common causes include:

- Chronic kidney disease
- Endocrine disorders such as hyperthyroidism and Cushing's syndrome
- Adrenal gland disorders
- Obstructive sleep apnea
- Congenital heart defects
- Certain medications, including oral contraceptives, corticosteroids, and decongestants

Treatment of the underlying condition may help control secondary hypertension.

Risk Factors of Hypertension

Several risk factors increase the likelihood of developing hypertension. These factors may be categorized as non-modifiable and modifiable.

Non-Modifiable Risk Factors

Age

The risk of hypertension increases with age due to progressive stiffening of blood vessels and age-related cardiovascular changes.

Family History and Genetics

Individuals with a family history of hypertension are at greater risk of developing the condition. Genetic factors can influence blood pressure regulation and cardiovascular function.

Gender

Men are generally at higher risk of developing hypertension during early and middle adulthood. However, after menopause, women experience a significant increase in hypertension prevalence due to hormonal changes.

Ethnicity

Certain ethnic groups have a higher prevalence of hypertension and may experience greater complications related to elevated blood pressure.

Modifiable Risk Factors

Obesity and Overweight

Excess body weight increases the workload on the heart and contributes to vascular resistance, making obesity one of the most significant risk factors for hypertension.

High Salt Intake

Excessive sodium consumption promotes water retention and increases blood volume, leading to elevated blood pressure levels.

Unhealthy Diet

Diets high in saturated fats, processed foods, and refined sugars while low in fruits, vegetables, and whole grains can contribute to hypertension.

Physical Inactivity

Lack of regular physical activity can lead to weight gain, poor cardiovascular fitness, and increased blood pressure.

Smoking

Tobacco use damages blood vessels, increases heart rate, and temporarily raises blood pressure, contributing to long-term cardiovascular risk.

Excessive Alcohol Consumption

Regular and excessive alcohol intake can increase blood pressure and reduce the effectiveness of antihypertensive medications.

Chronic Stress

Persistent psychological stress may stimulate the sympathetic nervous system and increase the release of stress hormones, leading to elevated blood pressure.

Diabetes Mellitus

People with diabetes are more likely to develop hypertension due to vascular damage and metabolic disturbances associated with the disease.

Kidney Disease

Kidney disorders can interfere with fluid and electrolyte balance, contributing to elevated blood pressure.

Hypertension results from a combination of genetic, physiological, and environmental influences. While primary hypertension develops gradually without a specific cause, secondary hypertension is associated with identifiable medical conditions. Important risk factors include advancing age, family history, obesity, excessive salt intake, physical inactivity, smoking, alcohol consumption, chronic stress, diabetes, and kidney disease. Understanding these causes and risk factors is essential for developing effective prevention and management strategies. Lifestyle modifications, medical treatment, and complementary interventions such as acupressure may contribute to better blood pressure control and improved cardiovascular health.

Conclusion

Hypertension is a major global health concern and one of the leading risk factors for cardiovascular diseases, stroke, kidney failure, and premature mortality. Effective blood pressure control is essential for preventing complications, improving quality of life, and reducing the overall burden of disease. Although pharmacological treatment and lifestyle modifications remain the cornerstone of hypertension management, many patients continue to seek complementary approaches that can support long-term blood pressure regulation and overall well-being. Acupressure therapy has gained increasing attention as a safe, non-invasive, and cost-effective complementary intervention for individuals with hypertension. By stimulating specific acupoints, acupressure may help promote relaxation, reduce stress, improve circulation, and regulate autonomic nervous system activity, all of which may contribute to better blood pressure control. In addition to its potential physiological benefits, acupressure empowers patients to take an active role in managing their health. The evidence reviewed suggests that acupressure therapy may contribute to reductions in systolic and diastolic blood pressure and may enhance the effectiveness of conventional hypertension treatment. Furthermore, acupressure is generally well tolerated, easy to administer, and associated with minimal adverse effects, making it a practical adjunctive therapy in both clinical and community settings. acupressure therapy represents a promising complementary

approach for blood pressure management in hypertensive patients. When used alongside standard medical care and healthy lifestyle practices, it may support improved cardiovascular outcomes and overall quality of life. However, further large-scale randomized controlled studies are needed to strengthen the evidence base, establish standardized treatment protocols, and determine its long-term effectiveness in hypertension management.

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