MEDS Chinese Medicine (2025)
Clausius Scientific Press, Canada

DOI: 10.23977/medcm.2025.070108
ISSN 2616-1753 Vol. 7 Num. 1

Research progress of traditional Chinese medicine in the treatment of hypertension

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Keywords: Hypertension, etiology and pathogenesis, Chinese medicine treatment, research progress

Abstract: Hypertension is a common chronic disease with low awareness rate, low treatment rate and low control rate. The complications caused by hypertension seriously affect people's daily life and threaten people's physical and mental health. Although western medicine plays a major role in the treatment of hypertension, this paper has learned that traditional Chinese medicine has a significant effect on the treatment of hypertension through reading relevant literature. In recent years, Chinese medicine has made many theoretical, clinical and experimental achievements in the treatment of hypertension. The purpose of this paper is to review the research progress of traditional Chinese medicine in the treatment of hypertension, focusing on the etiology and pathogenesis of hypertension, syndrome classification and unique treatment methods of traditional Chinese medicine.

1. Introduction

Hypertension is a group of diseases characterized by increased systemic arterial pressure. Hypertension is the most important risk factor for cardiovascular and cerebrovascular diseases. The incidence, prevalence and blood pressure level of hypertension increase with age. The awareness rate, treatment rate and control rate of hypertension patients in China have been significantly improved in recent years, but they are still at a low level, reaching 51.6 %, 45.8 % and 16.8 % respectively[1]. According to the data released by the National Health and Family Planning Commission in 2016, the prevalence of hypertension in China reached 25.2 %. The number of deaths caused by hypertension each year exceeds 2 million nationwide. The ' Chinese Guidelines for the Prevention and Treatment of Hypertension '[2] pointed out that systolic blood pressure (SBP) ≥ 140 mmHg and / or diastolic blood pressure (DBP) ≥ 90 mmHg in the clinic without the use of antihypertensive drugs. According to the level of elevated blood pressure, hypertension was divided into grade 1, grade 2 and grade 3. A survey showed that for every 10 mmHg increase in systolic blood pressure, the risk of stroke and myocardial infarction in Asian populations increased by more than 50 % and 30 %, respectively.[3].The risk of stroke caused by hypertension is five times higher than that of coronary heart disease.

2. Etiology and pathogenesis

There is no exact name of hypertension in traditional Chinese medicine, but according to its clinical symptoms and signs, it can be classified into the category of ' vertigo ', ' headache ' and other diseases. The understanding of hypertension in traditional Chinese medicine was first seen in ' Huangdi Neijing ', with records such as 'sudden headache, dizziness, dizziness, upset and sleeplessness '. In ' Treatise on Febrile Diseases', Zhang Zhongjing used Guizhi Decoction to treat ' stroke headache '.On this basis, later generations of doctors summarized it as ' phlegm, dampness, heat, qi stagnation, blood stasis ' and other syndromes according to the etiology and pathogenesis. Traditional Chinese medicine believes that the pathogenesis of hypertension mainly includes imbalance of yin and yang, dysfunction of zang-fu organs and poor circulation of qi and blood. Specifically, hypertension is located in the liver, kidney and heart, mainly in liver and kidney, and the syndrome belongs to yin deficiency and yang hyperactivity, deficiency in origin and excess in superficiality. Because the etiology of the disease is multi-terminal and the lesions are complicated in the course of the disease, it is necessary to think comprehensively in many aspects.

In various ancient literatures, there are many explanations on the etiology and pathogenesis of hypertension, such as: ' Suwen ·Zhizhen Yaodalun ' says: ' All winds are dizzy, all belong to the liver ', pointing out that the internal movement of liver wind is an important cause of vertigo. 'Pivot ·sea theory ' is cloud: ' lack of marrow sea, the brain turns to tinnitus ', suggesting that the lack of kidney essence can also lead to vertigo. Wang Shuhe, a doctor in Jin Dynasty, described the pulse changes of stroke patients in ' pulse meridian ', such as ' stroke is evil, abdomen is large, limbs are full, pulse is large and slow, born; tight and floating, death, ' although this is not a direct discussion of hypertension, but reflects the understanding of the pulse of cerebrovascular disease at that time. Liu Hejian, a doctor in the Jin and Yuan Dynasties, put forward that ' non-foreign wind, due to the loss of interest and the heart fire, ' emphasizing the role of internal wind (liver wind) in the pathogenesis of hypertension. Zhu Danxi put forward the view of ' no phlegm and no dizziness ' and ' no fire and no dizziness ', and believed that phlegm dampness and fire heat evil are the important pathogenesis of vertigo.

3. Syndrome characteristics

At present, the classification criteria for the syndrome types of H-type hypertension have not been unified. By sorting out the literature, it is found that scholars mostly use the ' guiding principles for clinical research of new Chinese medicine ' and the syndrome differentiation of vertigo in ' internal medicine of traditional Chinese medicine ' as reference standards, which are mainly divided into five syndromes: yin and yang deficiency, yin deficiency and yang hyperactivity, phlegm dampness, liver fire hyperactivity and phlegm and blood stasis[4]. The pathogenesis of hypertension is more common with deficiency in origin and excess in superficiality. Deficiency in origin is mainly yin deficiency and yang deficiency. Excess in superficiality is more common with wind, blood stasis, phlegm and fire. The proportion of excess syndromes such as blood stasis and phlegm stasis has increased at present. 'Danxi Xinfa ·Dizziness 'cloud: ' All dizziness is due to the deficiency of both qi and blood, and the Qingqiao is unfavorable and the wind evil is also generated. Blood deficiency, qi deficiency and blood less and wind evil. "medical law ·headache ' cloud: ' due to qi and blood deficiency, headache... Tonifying blood and replenishing qi is the main treatment. ' It is believed that its syndromes are mostly divided into virtual and real. Among them, the syndrome of intermingled deficiency and excess accounts for the vast majority. According to the principle of syndrome differentiation and classification of hypertension in the guiding principles of clinical research on new drugs of traditional Chinese medicine, 1069 patients with essential hypertension from Beijing community were investigated. The results showed that the proportion of

patients with phlegm dampness syndrome was the highest. In addition, the proportion of yin deficiency and yang hyperactivity syndrome in female patients is significantly higher than that in male patients. At the same time, with the increase of age, the proportion of patients with yin deficiency and yang hyperactivity syndrome also gradually increases [5]. In the distribution of TCM syndromes of different genders and ages in patients with hypertension, the proportion of males in yin and yang deficiency is higher than that of females, indicating that males are more likely to have yang deficiency syndromes than female patients [6]. The literature on TCM syndromes related to hypertension in the past 10 years was studied. Compared with other regions, it was found that phlegm dampness syndrome was the most common in North China, Central China and Southwest China, followed by Yin deficiency and Yang hyperactivity syndrome. East China and South China show obvious advantages of yin deficiency and yang hyperactivity syndrome; as for the northeast and northwest, liver fire hyperactivity syndrome occupies the dominant position. It is particularly worth mentioning that the incidence of phlegm and blood stasis syndrome in East China is far higher than that in other regions [7].

Through the above investigation and study, it is found that TCM syndromes are closely related to the pathological factor of ' phlegm '.In clinical practice, attention should be paid to patients with phlegm dampness syndrome and phlegm and blood stasis syndrome. In recent years, the TCM syndromes of hypertension are mainly phlegm and blood stasis. The TCM syndromes of patients in different regions are obviously different. The syndromes of different ages and genders are also different. Therefore, we should combine the differences in diet culture, climate characteristics and living habits. Based on the overall concept of traditional Chinese medicine, we advocate the core concept of syndrome differentiation and treatment, and fully realize the treatment according to the time, place and person.

4. Treatment based on syndrome differentiation

4.1. Treatment from phlegm

Jiang Yibin et al. [8]believed that obesity is an important risk factor for hypertension in young and middle-aged people. Most of them are due to improper diet and emotional disorders caused by phlegm and dampness. They often use the method of drying dampness. Dampness is easy to block the spleen and stomach, remove dampness, and the lifting function of the spleen and stomach is naturally restored. Dizziness, headache and other clinical symptoms can also be solved. Daisier [9] and other studies have found that Huazhuo Qingqiao Decoction can not only reduce blood pressure, but also improve the blood supply of heart and brain, so as to delay the process of atherosclerosis. Huazhuo Qingqiao Decoction combined with antihypertensive drugs combined with folic acid has improved a variety of TCM syndromes, and can effectively reduce the level of PWV in patients, Hcy level while lowering blood pressure. Fan Hongliang et al.[10]studied 80 patients with phlegm-dampness syndrome and found that Zexie Decoction can significantly improve the clinical manifestations of patients with essential hypertension, especially in the main symptoms, such as vertigo and headache, as well as the improvement of insomnia symptoms in secondary symptoms.

In the theory of traditional Chinese medicine, phlegm is divided into invisible phlegm and tangible phlegm. The phlegm in the body of hypertension is mostly invisible phlegm, the spleen is not healthy, the water is wet, and the dampness is accumulated into phlegm. Kidney Yang deficiency, can not warm water, water wet, liver fire, refining liquid into phlegm. Phlegm dampness is easy to block qi and affect the operation of qi and blood. You mainly use methods such as invigorating spleen and resolving phlegm, drying dampness and resolving phlegm, and promoting blood circulation and resolving phlegm to remove phlegm dampness and restore qi and blood operation. Traditional Chinese medicine pays attention to syndrome differentiation and treatment,

and should formulate individualized treatment plans according to the conditions of different patients.

4.2. Treatment from the virtual

Professor Chen Huade[11] found in clinical practice that emotional factors have become an important cause of essential hypertension. It leads to liver dysfunction, poor qi movement, and long-term fire damage to yin, leading to liver and kidney yin deficiency, physiological dysfunction of the whole body, imbalance of yin and yang, and imbalance of qi and blood. Professor Chen recommended the diagnosis and treatment principle of ' poison cures the inside, needle stone cures the outside '. He advocated the combination of acupuncture and medicine, internal and external treatment, and established the treatment principle of calming the liver and suppressing yang, nourishing the kidney and softening the liver. Baihui, Fengchi, Quchi, Hegu, Taichong, Sanyinjiao, Fuliu, supplemented by Tianma Gouteng Decoction. Hong Ying et al. [12] found that Tianma Gouteng Decoction combined with western medicine antihypertensive drugs had better antihypertensive effect on EH patients with hyperactivity of liver yang than western medicine alone, and could effectively improve clinical symptoms. Luo Jiafu et al. [13] found that the combination of self-made Qinggan Jiangya decoction and conventional western medicine in the treatment of primary hypertension with hyperactivity of liver yang was superior to the use of conventional western medicine alone. Ren Jianghua and other[14] studies have shown that Qingnao Jiangya Tablet has obvious antihypertensive effect on patients with grade I and II hypertension, and can effectively improve the clinical symptoms of patients. Its mechanism may be achieved by regulating the ratio between NO and ET-1.Li Ying et al. [15] found that on the basis of western medicine treatment, the combination of oral administration of vertigo No.2 prescription and evodia rutaecarpa application can effectively treat essential hypertension with deficiency of both yin and yang. In terms of TCM syndrome score, TCM syndrome efficacy, blood pressure control, etc., the effect of combined treatment is obviously more advantageous than that of simple western medicine. Wang Chunliang et al.[16] found that Dihuang Yinzi capsule combined with conventional western medicine therapy had a significant effect on the treatment of refractory hypertension with Yin and Yang deficiency syndrome.

5. Characteristic treatment of traditional Chinese medicine

5.1. Acupuncture treatment of hypertension

Through in-depth study of relevant literature, Wang Jing et al. [17]found that acupuncture depends on a variety of systems, multiple targets and multi-level regulatory mechanisms in the realization of antihypertensive effect. The specific manifestations are as follows: acupuncture can inhibit the activity of central and peripheral sympathetic nerves; acupuncture can regulate the expression of immune and inflammatory factors; acupuncture can regulate the balance of renin-angiotensin-aldosterone system; acupuncture helps to improve the structure and function of blood vessels; acupuncture has the effect of anti-oxidative stress; acupuncture can promote autophagy, etc. Academician Shi Xuemin [18] established an acupuncture antihypertensive therapy based on the principle of ' promoting blood circulation and dispersing wind, harmonizing liver and spleen '. Academician Shi first proposed that ' disharmony between qi and blood ' is the main pathogenesis of hypertension. He first proposed ' acupuncture manipulation quantification ', selecting Taichong, Hegu, Quchi, Zusanli, four acupoints, two yin and two yang, two qi and two blood, and then adding people to meet. Zhang Yan et al.[19] found that acupuncture group and western medicine group were used to treat hypertension. Acupuncture treatment of phlegm

dampness type hypertension has better curative effect, more stable blood pressure reduction and less adverse reactions.Li Hongbo et al. [20]found that acupuncture at Taichong point combined with amlodipine tablets can better improve the symptoms of patients than western medicine alone, and can achieve stable and continuous blood pressure reduction, with fewer adverse reactions. Zou Yan et al. [21] found that acupuncture at Quchi point was effective in the treatment of essential hypertension. Both twirling and reinforcing-reducing manipulations were effective. Observation of 48 patients with hypertension found that acupuncture had a significant effect on grade 1 hypertension. With the increase of blood pressure, the antihypertensive effect decreased.

As an important treatment method in traditional Chinese medicine, acupuncture is widely used in clinical treatment because of its simple operation, no serious toxic and side effects, and remarkable curative effect. In recent years, acupuncture has been widely used in the treatment of hypertension, and its curative effect has also been greatly improved. Acupuncture treatment of hypertension We should carry out grading treatment. For grade 1 hypertension, acupuncture treatment is more effective and has fewer side effects. For grade 2 and above hypertension, drugs and acupuncture should be used in combination. The antihypertensive effect is significant, the blood pressure is safer and the duration is longer.

5.2. Moxibustion treatment of hypertension

The potential mechanism of moxibustion in the treatment of hypertension may be to regulate the body 's nerve-endocrine system, inhibit the excessive excitement of the central and sympathetic nerves, and finely regulate the activity level of the renin-angiotensin-aldosterone system by moxibustion at certain acupoints on the body of patients. Secondly, moxibustion can significantly improve the vascular endothelial function to antioxidant stress response, and effectively reduce the inflammatory response in the body. Zheng Liwei et al.[22] found that moxibustion at bilateral Fenglong and Zusanli in the treatment of phlegm-dampness hypertension can reduce blood pressure and regulate blood lipid levels. Hou Ning et al. [23] found that the meta-analysis of the clinical efficacy of moxibustion in the treatment of primary hypertension found that moxibustion has the effect of assisting western medicine to exert antihypertensive effect and can improve clinical symptoms, but it cannot replace western medicine treatment. The results of Wang Wei [24]showed that moxibustion at Yongquan point could reduce the blood pressure level and symptom classification of patients. [25] Observation of deficiency and excess group of patients with hypertension found that moxibustion can reduce the central arterial pressure in patients with essential hypertension, and the deficiency group of patients with essential hypertension curative effect is better than the excess group. Xu Su 'e et al [26]found that moxibustion can reduce SBP and DBP in patients with prehypertension, but different frequencies may affect the effect of treatment.

5.3. Other Traditional Chinese Medicine Treatments

Zhao Hongxia et al. [27] found that acupoint application combined with traditional Chinese medicine foot bath can improve vertigo symptoms in patients with hypertension and enhance their self-care ability. The effect is better than that of benazepril hydrochloride tablets alone. Jiang Shan et al. [28]observed that the use of conventional treatment methods in patients with essential hypertension on the basis of the increase of ear pressure beans with evodia rutaecarpa acupoint application and other special external treatment of traditional Chinese medicine, can effectively make the patient 's blood pressure level further reduced, with good clinical value.[29] Clinical studies have found that Tianma Gouteng Decoction combined with ear tip bloodletting therapy has a significant effect in the treatment of hypertension, which can effectively reduce the fluctuation of blood pressure and reduce the level of serological indicators. Secondly, acupoint massage, it has

been reported that acupoint massage can effectively improve the symptoms of patients with hypertension; acupoint injection, it has been reported that local injection of traditional Chinese medicine such as gypsum, rehmannia, Radix Ophiopogonis, Radix Scrophulariae can effectively reduce blood pressure.

6. Other Traditional Chinese Medicine Treatments

Patients with hypertension have poor compliance with traditional Chinese medicine treatment, and health education is an important way to improve patients ' medication compliance. Through health education, patients can understand the relevant knowledge of the disease, have a correct understanding of the disease, and then change the bad living habits and behaviors, and consciously cooperate with the treatment. TCM health education plays an important role in the prevention and treatment of hypertension. However, at present, the publicity of traditional Chinese medicine in the prevention and treatment of hypertension is not enough and lacks pertinence, so the publicity should be strengthened. Hypertension is a systemic disease, and its occurrence is closely related to unhealthy lifestyles. Therefore, healthy lifestyle intervention is also very important for the treatment of hypertension.

7. Conclusions

At present, the treatment of hypertension with traditional Chinese medicine starts from the overall concept and syndrome differentiation and treatment. Traditional Chinese medicine doctors constantly sum up experience. The etiology and pathogenesis, mechanism of action and syndrome differentiation of hypertension have not been fully determined. The clinical syndrome differentiation of this disease lacks unity and objective syndrome types and diagnosis and treatment standards for reference only. It is still necessary to carry out large sample, multi-regional and multi-directional clinical observation and research, increase follow-up time, and formulate rigorous and scientific syndrome differentiation according to the research results. Type, clinical diagnosis and treatment plan and efficacy evaluation criteria; we should actively use modern advanced equipment and cutting-edge science and technology to carry out multi-target, multi-center and multi-path pharmacological research of traditional Chinese medicine components, and further improve the mechanism of traditional Chinese medicine in the treatment of this disease. In the treatment of hypertension, traditional Chinese medicine not only shows good clinical results, but also effectively reduces the side effects caused by western medicine treatment. The treatment of hypertension is mostly based on comprehensive treatment of western medicine. Western medicine is widely used in clinical practice because of its direct drug effect. However, although the long-term use of traditional Chinese medicine can reduce the adverse reactions of western medicine, its safety is difficult to be guaranteed. Therefore, it has become a research hotspot to seek a safe, effective and less toxic and side effects drug. Many researchers began to pay attention to the compound preparation of effective components with antihypertensive effect in traditional Chinese medicine.

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