

Review Article

A Review on the Nonpharmacological Therapy of Traditional Chinese Medicine with Antihypertensive Effects

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Hypertension is a global health concern. Although the pharmacological treatment has obvious antihypertensive effects, there are still some limitations on management of hypertension by drug therapy alone. In recent years, the nonpharmacological therapy of traditional Chinese medicine (TCM) has gradually become an important mean to help the prevention and treatment of hypertension in some Eastern countries. In this review, the nonpharmacological TCM therapies, including acupuncture, tuina, Tai Chi, and auricular-plaster, are covered along with the mechanism.

1. Introduction

Hypertension is one of the most important risk factors for heart disease, stroke, chronic kidney disease and so on [1]. Globally, hypertension is responsible for at least 45% of deaths due to heart disease and 51% of deaths due to stroke [2]. In 2017, American Heart Association (AHA) released the new version of the American Guidelines for Hypertension, in which hypertension is defined as blood pressure (BP) $\geq 130/80$ mmHg [3]. Under these circumstances, more adult population will be affected, and hypertension is becoming a more and more serious medical and public health issue. In current treatments for hypertension, there are several classes of antihypertensive drugs and strategies to modify the effect of adverse lifestyles on BP. Although these have made great progress in targeting hypertension, for which a number of approaches have been developed, only about a quarter of patients are receiving adequate treatment.

Pharmacotherapy can effectively control the blood pressure. However, it may be associated with potential adverse events, including hepatic and renal dysfunction. There are still some other deficiencies in drug treatment. For example, prehypertension and stage I hypertension alongside mild hypertension drugs are recommended for intensive lifestyle management rather than antihypertensive drugs for their

initial BP lowering. The effect of drugs in the treatment of refractory hypertension is still not satisfactory, and the economic burden of long-term medication may cause lack of compliance to the poor economic conditions patients [4]. Therefore, more and more people have turned to focus on complementary and alternative medicine (CAM) for treating essential hypertension (EH).

Traditional Chinese medicine (TCM) includes many kinds of nonpharmacological interventions, such as acupuncture, tuina, and qigong. They can improve related symptoms of diseases through external stimuli. The American College of Physicians recommended noninvasive pharmacologic and nonpharmacologic treatments such as acupuncture and tuina as first-line treatment for low back pain [5]. In fact, TCM nonpharmacological interventions have a positive effect on the adjuvant treatment of disease. Firstly, they avoid the direct toxic effect of the drugs on the organs because of *in vitro* stimuli. Secondly, some studies [6–10] showed that they can better control the blood pressure in patients with early hypertension. It puts forward good directions for the risk of taking medicine for early hypertension. Thirdly, they can markedly improve the symptoms of hypertension, such as severe headache, dizziness, and fatigue. For some patients with refractory hypertension or serious related symptoms, the quality of life can be improved and the pain can be

reduced by TCM nonpharmacological interventions [11–14]. Last but not least, they belong to a low cost treatment. Some acupoint massage or exercise can be carried out by patients themselves paying no money. This review summarizes the methods of TCM nonpharmacological interventions on EH, along with the mechanism.

2. Acupuncture

As a famous form of traditional Chinese medicine, acupuncture is one of the oldest and most commonly used forms of alternative medicine. It is a method for restoring balance of qi, the life force that circulates throughout the body in energy pathways that are called meridians, by stimulating specific points over the surface of body known as acupuncture points or acupoints [15]. In recent years, as complementary medicine interventions, acupuncture is increasingly valued by people and widely used in the clinic, as well as being applied in the United States and Europe. It is said that acupuncture can treat a number of diseases, including those related to the cardiovascular system [16], such as hypertension [17]. So it could be used on patients who want to avoid drug therapy or as an alternative option to reduce dosages of antihypertensive agents.

Some systematic reviews and studies [6, 17–19] found that acupuncture might lower blood pressure in prehypertension and stage I hypertension. Acupuncture could reduce blood pressure by regulating the nervous system. Some acupoints could reduce blood pressure by modulating sympathetic nerves [20–23]. Tan Ying-ying et al. [24] established hypertension model with 45 male SD rats and found that electroacupuncture (EA) stimulation of “Quchi” (LI 11) can downregulate arterial blood pressure and sympathetic nerve activity and increase the baroreflex sensitivity in hypertension rats, which may be related to its effects in downregulating p47 phagocyte oxidase mRNA and protein expression in the RVML. One of the antihypertensive mechanisms of acupuncture at Taichong (LR3) is also via the regulation of renal sympathetic activity and ss-ARs [25]. In addition, acupuncture can also stimulate the rostral ventrolateral medulla (RVLM) to regulate blood pressure. The study of Wang Xue-Rui et al. [26] found that acupuncture decreases high blood pressure and nicotinamide adenine dinucleotide phosphate oxidase in the RVLM of spontaneously hypertensive rats. Oxidative stress in the RVLM, where the sympathetic nervous control center is located, contributes to neural mechanisms of hypertension. So the mitogen-activated protein kinases and the sciatic nerve are involved in the mechanism of acupuncture’s amelioration of hypertension.

Besides regulating nervous system, acupuncture can also improve hypertension through various ways. For example, EA could significantly reduce markers of cardiac hypertrophy and apoptosis, as well as elevated expression of antioxidant enzymes including superoxide dismutase-1 (SOD1) in SHRs [27]. Sin Bond Leung et al. [28] found that the effects of acupuncture in treating hypertension were associated with reduced oxidative stress, increased nitric oxide bioavailability, and endothelial function in SHRs.

3. Tuina

Tuina is based on the theory of internal organs and meridians of TCM. It is pressed on specific parts of the body surface to regulate the body’s physiological and pathological conditions, to achieve the purpose of physiotherapy. Modern studies indicate that tuina manipulations modulate BP by the following four aspects [29]. Firstly, it regulates the nervous system, activating vagus, inhibiting sympathetic nerves, and adjusting autonomic nerves in both ways, and further dilating capillaries and reducing the resistance of peripheral blood vessels [30]. Secondly, the manipulations can relax major muscle groups, release vascular spasm, increase vascular bed, and improve blood flow in peripheral vessels [31]. Thirdly, it stimulates the carotid baroreceptor to excite the vagus, reduce heart rate and pumping blood volume, inhibit vasomotor neurons, dilate blood vessels, and decrease the resistance of peripheral blood vessels [32]. Fourthly, the manipulations can also reduce symptoms such as pressure and anxiety [33, 34].

Shen Zhi-fang [35] et al. treated 40 patients with grade 1-2 hypertension and observed that the tuina manipulations of kidney-tonifying blood-circulating and collaterals-unblocking could produce a significant effect on antihypertension and improving blood pressure variability, and it also could effectively reduce the target organ damage in hypertension and benefit the prognosis. In addition, tuina can also improve sleep quality [36, 37] in middle-aged Women and old people with hypertension.

4. Qigong

Qigong is an ancient Chinese healing art, involving meditation, controlled breathing, and movement exercises that date back thousands of years, and is believed to be based on TCM. Qigong includes two concepts: qi, the vital energy of the body and gong, the training or cultivation of qi. Medical qigong is divided into internal and external components [38]. Internal qigong consists of exercises, including breathing, meditation, focus of intention, and rhythmical movements, while external qigong is performed by a trained practitioner in order to deliver qi energy to the patient. One possible explanation for the beneficial effects of qigong exercise is increased healthy flow of qi, blood, and fluid throughout the body by repetitive movements to relieve pathological stagnation and regulate the function of meridians and visceral organs. Many potential beneficial effects have been found on various disorders [39], including cardiovascular disorders, rheumatoid arthritis, asthma, and cancers. And qigong has also been studied as an alternative therapy for controlling blood pressure.

For example, Ba duan jin qigong exercise [40–43] may have the potential to improve systolic blood pressure (SBP), diastolic blood pressure (DBP), high-density lipoprotein cholesterol (HDL-C), low-density lipoprotein cholesterol (LDL-C), total cholesterol (TC), triglycerides, fasting glucose, serum NO, and plasma endothelin-1 and then improve cardiovascular function and decrease BP in older adults with hypertension. Randomized clinical trials [44] also showed that the possible mechanisms by which qigong could reduce

BP in hypertensive patients may include modulation of the sympathoadrenal medulla function, while the lowering of plasma norepinephrine and epinephrine levels can reduce sympathetic nervous system activity. Therefore, a decrease in catecholamine levels through modulation of the sympathetic adreno medullary function could be the mechanism underlying the observed reduction in blood pressure.

5. Tai Chi

Tai Chi also originates from China. It is a therapy which evolved from martial arts. Tai Chi [45] mainly comprises three basic components, movement, deep breathing, and meditation. The movement of this exercise is slow, fluid, and continuous. They need body, breathing, and heart to achieve a balanced state. In this way, the essence, qi and spirit of the body can form a benign cycle. Doing this exercise [46] can relax the body and mind, strengthen the joints, improve joint mobility, and boost the immune system. The slow movements [47] between different postures that are normally held for short periods of time represent physical stimuli, which affect the cardiovascular and muscular systems.

Tai Chi exercise [48, 49] had shown positive effects on patients with many chronic diseases. Many systematic reviews [50–53] of Tai Chi also showed that this sport has beneficial effects on BP of patients with hypertension. And a community-based study [54], which include 266 patients with hypertension, found that a Tai Chi program to improve hypertension in older adults is effective in reducing blood pressure and body mass index, maintaining normal renal function and improving physical health of health-related quality of life. The study of PAN Xiaogui [55] et al. found that SBP, DBP, and mean arterial pressure levels can significantly reduce in 24 EH patients who practice Tai Chi exercise, compared with 16 patients without exercise. And the reduced blood pressure may be correlated with increased plasma levels of gaseous signal molecules, such as endogenous NO, CO, and H₂S, which are involved in blood pressure regulation.

6. Auricular-Plaster

Auricular-plaster has been utilized in the treatment of diseases for thousands of years. Dr. Paul Nogier firstly originated the concept of an inverted fetus map on the external ear. A present study [56] indicates that the auricular-plaster plays a role in vagal activity of autonomic functions of cardiovascular, respiratory, and gastrointestinal systems. So auricular-plaster is also proposed to prevent hypertension via vagal regulation.

Some meta-analysis trials [57–59] show that auricular pressure therapy is safe and effective for EH. Yang Xiaolin [12] et al. divided ninety patients with primary hypertension into medication group and combination group. After 4 weeks of treatment, they found that auricular point sticking combined with acupuncture for primary hypertension is better than captopril for the improvement of 24 h ambulatory blood pressure, Ang II level and creatinine level, and can improve dizziness, palpitation, and other clinical symptoms. It [60, 61]

can also be applied at the acupoints of Shenmen, sympathesis, kidney, liver, heart, and subcortex to improve physical pain and reduce target organ damage for hypertensive patients.

7. Acupoint Catgut Embedding

Acupoint catgut embedding [62] refers to setting absorbable catgut into the acupoint, by stimulating meridians, balancing yin and yang, and harmonizing qi and blood, to achieve the purpose of adjusting viscera and treating diseases. Modern medical theory holds that the inflammatory reaction occurred in the local package by catgut to produce continuous stimulation on acupoints. By stimulating the acupuncture point, it can restore the regulation function of central nervous system and endocrine body fluid, relieve blood vessel spasm, and steady the blood pressure.

Clinical trials [11, 63–65] showed that acupoint catgut embedding therapy can better improve the symptoms and blood pressure of patients with hypertension. Li Ling [66] et al. treated 70 prehypertensive patients with acupoint catgut embedding and found that this treatment also can effectively downregulate the total cholesterol, triglyceride, and low-density lipoprotein cholesterol, upregulate the high-density lipoprotein cholesterol, and reduce weight. The mechanism [67–69] of acupoint catgut embedding may be sustained stimulation of acupoints, which regulate the excitability of the central nervous system, decrease the content of renin-angiotensin-aldosterone, improve the microvascular circulation and relaxation, and finally regulate the arterial blood pressure reaching a new balance.

8. Chinese Medicine Foot Bath

TCM believes that the feet have many meridians and acupoints connected with viscera. For example, high blood pressure is also located at the toes, and long-term compression can make the body in the dynamic balance of qi and blood [70]. Chinese medicine foot bath therapy [71, 72] has the following three main effects on hypertension. (1) Improving the blood circulation of the whole body and regulating the autonomic nerve. (2) Reducing blood viscosity. (3) Promoting metabolism. It has the dual effect of the water temperature and medicine liquid fumigation: this therapy, combined with the effect of drug heat and drug penetration [73], can increase the inhibition process of cerebral cortex through the mechanism of nerve reflex and body fluid, so as to regulate the action of the subcortical vascular motor center, reduce the tension of peripheral arteriole, and assist in the treatment of hypertension [74].

Some clinical observations [75, 76] showed that, compared with common therapy, treatment with Chinese medicine foot bath can perfect better in reducing systolic and diastolic pressure, and improving symptoms like vertigo, headache, palpitation, and shortness of breath. Huang Yao [77] et al. intervened in 152 patients with prehypertension and primary grade 1 hypertension by Zhu Liangchun's foot bath recipe and found that the clinical curative effect is promising. Particularly, it has obvious effect on decreasing

DBP. Cui Yi [78] et al. observed 140 patients with different stages of hypertension and found that Chinese medicine foot bath has significant effect on mild, moderate, and severe hypertension.

9. Other Therapies

In fact, there are still other therapies for EH in folk, such as Chinese medicine pillow, which worked though volatility of herbs [79–81], and Chinese umbilical, which absorbed drugs into the blood through navel [82, 83] and special diet. Some studies showed that these therapies also can relieve hypertension and its related symptoms of patients in varying degrees. But these researches are only in the stage of clinical observation and not going on deeper mechanism study.

In summary, the abundant nonpharmacological therapies could not only enhance drug effect but also have many other advantages, such as patient's willingness to accept, cheapness, no toxic side effects and so on. However, the basic research on TCM nonpharmacological therapies for hypertension is still inadequate based on the existing literature. Firstly, the regulations of indications or contraindications of different treatments are still unclear. For example, exercise therapy may be suitable for critical hypertension and stages I and II hypertension, but not for the stage III hypertension, or other serious complications. Therefore, different types of hypertension patients should be in accordance with the doctor's exercise prescription, to choose the appropriate sports and sports intensity, and pay attention to the safety of sports. Secondly, the effectiveness of various nonpharmacological interventions has yet to be further studied. There are many reports on the treatment, but the mechanism of nonpharmacological interventions is still not clear. What is more, we can see the improvement of the risk factors and target organ damage are mentioned in many articles; however, they need to be further studied and discussed in the future.

As we know, the ultimate goal of hypertension treatment should be to reduce the incidence and mortality of heart, brain, and kidney complications. Although more and more people tend to use TCM nonpharmacological interventions, well-designed preclinical and clinical trials on the potential synergistic and adverse side effects of the therapies, as well as their mechanisms, are warranted. And TCM nonpharmacological interventions should be selected under the guidance of doctors.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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References

- [1] M. H. Forouzanfar, P. Liu, G. A. Roth et al., "Global Burden of Hypertension and Systolic Blood Pressure of at Least 110 to 115 mm Hg, 1990-2015," *JAMA: The Journal of the American Medical Association*, vol. 317, no. 2, pp. 165–182, 2017.
- [2] WHO Organization, "A global brief on hypertension : silent killer, global public health crisis: World Health Day," 2013.
- [3] P. K. Whelton, R. M. Carey, W. S. Aronow et al., "ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/ NMA/PCNA Guideline for the Prevention, Detection, Evaluation, and Management of High Blood Pressure in Adults," *Hypertension*, vol. 71, no. 4, 2018.
- [4] G. Mancia, R. Fagard, K. Narkiewicz et al., "2013 ESH/ESC Guidelines for the management of arterial hypertension: the task force for the management of arterial hypertension of the European Society of Hypertension (ESH) and of the European Society of Cardiology (ESC)," *Blood Pressure*, vol. 23, no. 1, pp. 3–16, 2014.
- [5] A. Qaseem, T. J. Wilt, R. M. McLean, and M. A. Forciea, "Noninvasive treatments for acute, subacute, and chronic low back pain: A clinical practice guideline from the American College of Physicians," *Annals of Internal Medicine*, vol. 166, no. 7, pp. 514–530, 2017.
- [6] Y. Liu, J.-E. Park, K.-M. Shin et al., "Acupuncture lowers blood pressure in mild hypertension patients: A randomized, controlled, assessor-blinded pilot trial," *Complementary Therapies in Medicine*, vol. 23, no. 5, pp. 658–665, 2015.
- [7] Y. Huang, Z. Zhenxian, and C. Zhixing, "Clinical Observation on Early Intervention of Pre-hypertension and Grade 1 Hypertension by ZHU Liangchun's Foot-bath Recipe," *Liaoning Journal of TCM*, vol. 42, no. 4, pp. 761–764, 2015.
- [8] X. Zhao and L. Zhenyue, "Clinical study of ear acupoint pressure combined with lifestyle intervention in the treatment of phlegm and blood stasis type hypertension," *Journal of China Prescription Drug*, vol. 16, no. 1, pp. 102–103, 2018.
- [9] Y. Wang, P. Wan, and C. Haiyun, "Combined Application of Traditional Chinese Medicine Acupoint Nursing Technology in the Nursing of Grade-1 Hypertension Patients," *Nei Mongol Journal of Traditional Chinese Medicine*, vol. 8, pp. 172–173, 2016.
- [10] L. Xun and W. Ling, "Clinical Research on Early Intervention of Pre-hypertension and Primary Grade 1 Hypertension by Qinggan Jiangya Drink," *Chinese Journal of Experimental Traditional Medical Formulae*, vol. 19, no. 3, pp. 295–297, 2013.
- [11] Y. Ping, S. Qingaowa, X. Zheng et al., "Clinical Observation on the Treatment of 60 Cases of Hypertension in the Early and Middle Stage of Phlegm Dampness[J]," *Xinjiang Journal of Traditional Chinese Medicine*, vol. 35, no. 3, pp. 41–43, 2017.
- [12] X. Yang and W. Liu, "Primary hypertension treated with acupuncture combined with auricular point sticking: a randomized controlled trial," *Zhongguo zhen jiu = Chinese acupuncture & moxibustion*, vol. 35, no. 3, pp. 227–231, 2015.
- [13] L. Shuhua, "Effect of Acupoint Massage on Cognitive Function and Sleep Quality in Elderly Patients with Hypertension," *World Journal of Sleep Medicine*, vol. 5, no. 1, pp. 50–52, 2018.
- [14] Y. Xiaowen, L. Mengxue, L. Wei et al., "Clinical Research Progress of the Influence of Traditional Exercise Therapy on Patients with Hypertension," *Clinical Journal of Traditional Chinese Medicine*, vol. 30, no. 1, pp. 156–158, 2018.
- [15] H. Abdi, M. Tayefi, S. R. Moallem et al., "Abdominal and auricular acupuncture reduces blood pressure in hypertensive

- patients,” *Complementary Therapies in Medicine*, vol. 31, pp. 20–26, 2017.
- [16] J. Longhurst, “Acupuncture cardiovascular actions: a mechanistic perspective,” *Medical Acupuncture*, vol. 25, pp. 101–113, 2013.
- [17] D.-Z. Li, Y. Zhou, Y.-N. Yang et al., “Acupuncture for Essential Hypertension: A Meta-Analysis of Randomized Sham-Controlled Clinical Trials,” *Evidence-Based Complementary and Alternative Medicine*, vol. 2014, Article ID 279478, 7 pages, 2014.
- [18] X. Gao, F. Ma, Q. Zhao, Y. Pang, and Y. Du, “Research progress and prospect of acupuncture for low-risk mild hypertension,” *Zhongguo zhen jiu = Chinese acupuncture & moxibustion*, vol. 36, no. 2, pp. 221–224, 2016.
- [19] X.-F. Zhao, H.-T. Hu, and J.-S. Li, “Is acupuncture effective for hypertension? A systematic review and meta-analysis,” *PLoS ONE*, vol. 10, no. 7, Article ID e0127019, 2015.
- [20] L. Xian-ming, Z. Jiang-song, H. Zhou et al., “Effects of acupuncture on Taichong (LR3) with different acupoints compatibility of 24-hour ambulatory blood pressure on patients with essential hypertension,” *China Journal of Traditional Chinese Medicine and Pharmacy*, vol. 32, no. 9, pp. 4188–4191, 2017.
- [21] J. Chen, W. Xi, and L. Fanrong, “Analysis on Clinical Controlled Trials on Essential Hypertension with Acupuncture Therapy,” *Liaoning Journal of Traditional Chinese Medicine*, vol. 44, no. 8, pp. 1580–1585, 2017.
- [22] H. Xi-mei, Y. Zhi-min, L. Yu-qing et al., “Clinical Study of Irbesartan combined with acupuncture and moxibustion in the treatment of essential hypertension,” *Jilin Medical Journal*, vol. 38, no. 10, pp. 1869–1870, 1869.
- [23] W. Xiuqin, “Research Progress on intervention of acupuncture and moxibustion in prehypertension,” *Journal of Clinical Medical*, vol. 4, no. 7, pp. 1381–1384, 2017.
- [24] Y.-Y. Tan, Y.-Y. Wang, and Q. Zhang, “Electroacupuncture of “Quchi” (LI 11) Inhibits the Elevation of Arterial Blood Pressure and Abnormal Sympathetic Nerve Activity in Hypertension Rats,” *Acupuncture research*, vol. 41, no. 2, pp. 144–149, 2016.
- [25] J.-W. Yang, Y. Ye, X.-R. Wang et al., “Acupuncture Attenuates Renal Sympathetic Activity and Blood Pressure via Beta-Adrenergic Receptors in Spontaneously Hypertensive Rats,” *Neural Plasticity*, vol. 2017, Article ID 8696402, 9 pages, 2017.
- [26] X. Wang, J. Yang, C. Ji et al., “Inhibition of NADPH Oxidase-Dependent Oxidative Stress in the Rostral Ventrolateral Medulla Mediates the Antihypertensive Effects of Acupuncture in Spontaneously Hypertensive Rats,” *Hypertension*, vol. 71, no. 2, pp. 356–365, 2018.
- [27] S.-N. Chang Lee, T.-J. Ho, M. A. Shibu et al., “Protective effects of electroacupuncture at LR3 on cardiac hypertrophy and apoptosis in hypertensive rats,” *Acupuncture in Medicine*, vol. 34, no. 3, pp. 201–208, 2016.
- [28] S. B. Leung, H. Zhang, C. W. Lau, and Z.-X. Lin, “Attenuation of blood pressure in spontaneously hypertensive rats by acupuncture was associated with reduction oxidative stress and improvement from endothelial dysfunction,” *Chinese Medicine*, vol. 11, no. 1, article no. 38, 2016.
- [29] Q. Zhao, L. Songhai, J. Meiqi et al., “Systematic Review and Meta-analysis of Efficacy and Safety of Massage in Treatment of Essential Hypertension,” *Journal of traditional Chinese Medicine*, vol. 59, pp. 1568–1573, 2018.
- [30] P. Liu, Y. Chen, K. Liu, J. Liu, and D. Cao, “Clinical efficacy of tuina treatment for 71 hypertension,” *Medical Journal of Chinese People’s Health*, vol. 22, no. 21, p. 2771, 2010.
- [31] F. Hao, “Tuina treatment for 60 hypertension,” *Chinese Manipulation Rehabilitation Medicine*, vol. 2, no. 9, pp. 35–36, 2011.
- [32] C. Wang and M. Ran, “Clinical observation of traditional Chinese tuina on the management of essential hypertension,” *Chinese Archives of Traditional Chinese Medicine*, vol. 28, no. 7, pp. 1546–1549, 2010.
- [33] L. Xu and Y. Chen, “Discussion of Tuiqiaogong in the treatment of essential hypertension,” *Journal of Chinese Medicine*, vol. 28, no. 1, pp. 146–147, 2013.
- [34] X. Low, “Clinical comparison of head and facial massage and Qiaogong point massage as adjuvant therapy of hypertension,” *Zhejiang Journal of Integrated Traditional Chinese and Western*, vol. 19, no. 4, pp. 209–211, 2009.
- [35] Z.-F. Shen, X.-D. Bian, F. Gao, Q.-J. Li, and J.-Y. Yuan, “Effect of tuina manipulations on blood pressure and its variability in hypertension patients,” *Journal of Acupuncture and Tuina Science*, vol. 13, no. 3, pp. 180–184, 2015.
- [36] M.-S. Ju, S. Lee, I. Bae, M.-H. Hur, K. Seong, and M. S. Lee, “Effects of aroma massage on home blood pressure, ambulatory blood pressure, and sleep quality in middle-aged women with hypertension,” *Evidence-Based Complementary and Alternative Medicine*, vol. 2013, Article ID 403251, 7 pages, 2013.
- [37] X. Huan, “Effect of acupoint massage on the quality of sleep in elderly patients with hypertension,” *Hubei Journal of Traditional Chinese Medicine*, vol. 38, no. 6, pp. 56–57, 2016.
- [38] M. S. Lee, M. H. Pittler, and E. Ernst, “Internal qigong for pain conditions: a systematic review,” *The Journal of Pain*, vol. 10, no. 11, pp. 1121–1127.e14, 2009.
- [39] K. M. Sancier and D. Holman, “Commentary: multifaceted health benefits of medical qigong,” *The Journal of Alternative and Complementary Medicine*, vol. 10, no. 1, pp. 163–165, 2004.
- [40] H. Pan and Y. Feng, “Clinical observation of rehabilitation therapy with health qigong ba duan jin on grade 1 hypertension of old patients,” *Journal of Nanjing Institute of Physical Education*, vol. 9, pp. 3–6, 2010.
- [41] L. Zheng, Q. Chen, and F. Chen, “The influence of ba duan jin exercise on vascular endothelium function in old patients with hypertension grade 1,” *Chinese Journal of Rehabilitation Medicine*, vol. 29, no. 3, pp. 223–227, 2014.
- [42] K. Ling and J. Wang, “Clinical Observation of Eight Period of Jin Adjuvant Treatment on 50 Cases Essential Hypertension,” *China Journal of Traditional Chinese Medicine and Pharmacy*, vol. 26, pp. 3025–3026, 2011.
- [43] L. P. Yan, S. P. Chen, and J. Li, “Study on Influence of Patients with High Blood Pressure TCM Constitution Ba Duan Jin,” *Contemporary Medical Forum*, vol. 12, pp. 195–196, 2014.
- [44] M.-S. Lee, M. S. Lee, H.-J. Kim, and S.-R. Moon, “Qigong reduced blood pressure and catecholamine levels of patients with essential hypertension,” *International Journal of Neuroscience*, vol. 113, no. 12, pp. 1691–1701, 2003.
- [45] L. Yongjun, G. Yurong, and Y. I. Zhigong, “Theoretical interpretation of traditional Chinese medicine in Taijiquan,” *Shaanxi Journal of Traditional Chinese Medicine*, vol. 33, no. 12, pp. 1696–1697, 2013.
- [46] L. T. Nguyen, R. B. Davis, T. J. Kaptchuk, and R. S. Phillips, “Use of complementary and alternative medicine and self-rated health status: results from a national survey,” *Journal of General Internal Medicine*, vol. 26, no. 4, pp. 399–404, 2011.
- [47] E. Ernst, M. H. Pittler, B. Wider, and K. Boddy, *Oxford Handbook of Complementary Medicine*, Oxford University Press, Oxford, UK, 2008.

- [48] S. Yongjia, Z. Jiyuan, L. Yijia et al., "The value of traditional exercise therapy in the prevention and treatment of chronic diseases in modern times," *Clinical Journal of Traditional Chinese Medicine*, vol. 4, pp. 462–464, 2015.
- [49] G.-Y. Yang, L.-Q. Wang, J. Ren et al., "Evidence base of clinical studies on Tai Chi: a bibliometric analysis," *PLoS ONE*, vol. 10, no. 3, Article ID e0120655, 2015.
- [50] G. Y. Yeh, C. Wang, P. M. Wayne, and R. S. Phillips, "The effect of Tai Chi exercise on blood pressure: a systematic review," *Preventive Cardiology*, vol. 11, no. 2, pp. 82–89, 2008.
- [51] M. S. Lee, E.-N. Lee, J.-I. Kim, and E. Ernst, "Tai chi for lowering resting blood pressure in the elderly: A systematic review," *Journal of Evaluation in Clinical Practice*, vol. 16, no. 4, pp. 818–824, 2010.
- [52] C.-L. Lin, C.-P. Lin, and A. S.-Y. Lien, "The effect of tai chi for blood pressure, blood sugar, blood lipid control for patients with chronic diseases: a systematic review," *Journal of Nursing*, vol. 60, no. 1, pp. 69–77, 2013.
- [53] A. Dalusung-Angosta, "The impact of Tai Chi exercise on coronary heart disease: a systematic review," *Journal of the American Association of Nurse Practitioners*, vol. 23, no. 7, pp. 376–381, 2011.
- [54] J. Sun and N. Buys, "Community-based mind-body meditative tai chi program and its effects on improvement of blood pressure, weight, renal function, serum lipoprotein, and quality of life in chinese adults with hypertension," *American Journal of Cardiology*, vol. 116, no. 7, pp. 1076–1081, 2015.
- [55] X. Pan, Y. Zhang, and S. Tao, "Effects of Tai Chi exercise on blood pressure and plasma levels of nitric oxide, carbon monoxide and hydrogen sulfide in real-world patients with essential hypertension," *Clinical and Experimental Hypertension*, vol. 37, no. 1, pp. 8–14, 2015.
- [56] W. He, X. Wang, H. Shi et al., "Auricular acupuncture and vagal regulation," *Evidence-Based Complementary and Alternative Medicine*, vol. 2012, Article ID 786839, 6 pages, 2012.
- [57] S. Yanan, G. Huimin, and S. Qiuhua, "Meta analysis of clinical effect of ear acupoint application adjuvant therapy for hypertension patients," *Nursing Research of China*, vol. 31, no. 18, pp. 1229–2232, 2017.
- [58] Z. Huiling, C. Qinglin, M. Zhang et al., "Auricular Pressure Therapy for Mild-to-moderate Essential Hypertension: a Meta-analysis Trials," *Chinese Journal of Integrative Medicine on Cardio/Cerebrovascular Disease*, vol. 14, no. 17, pp. 1966–1970, 2016.
- [59] L. Yang, Z. Xiao-lin, M. Fan-Jie et al., "Auricular Pressure plus Western Medicine Treatment for Primary Hypertension: A Systematic Review," *Journal of Nursing*, vol. 23, no. 7, pp. 6–13, 2016.
- [60] W. Zhao-jin, "Clinical Study on the Protective Effect of Auricular Point Sticking on the Target Organs in Hypertension Patients," *Shanghai J Acu-mox*, vol. 36, no. 4, pp. 409–413, 2017.
- [61] M.-L. Yeh, Y.-C. Chang, Y.-Y. Huang, and T.-Y. Lee, "A randomized controlled trial of auricular acupressure in heart rate variability and quality of life for hypertension," *Complementary Therapies in Medicine*, vol. 23, no. 2, pp. 200–209, 2015.
- [62] W. Yajie, L. Yansheng, X. Shujiao et al., "Treatment of 360 Cases of Hypertension by Acupoint Catgut Embedding," *Chinese Acupuncture & Moxibustion*, vol. 35, no. S1, pp. 13–14, 2015.
- [63] M. Jie, C. Xuezhong, W. Xiaoxiao et al., "Clinical Study of Acupoint Catgut Embedding Combined with Western Medicine in the Treatment of Hypertension," *Chinese Journal of Basic Medicine in Traditional Chinese Medicine*, vol. 20, no. 7, pp. 974–975, 2014.
- [64] L. Haixia and S. Wenge, "Su Wenge. Study on Acupoint Catgut Embedding Therapy for Hypertension," *Journal of External Therapy of TCM*, vol. 23, pp. 40–42, 2014.
- [65] W. Xiuhua and W. Xiuhui, "Taichong Acupoint Catgut Embedding Therapy for 180 Cases of Hypertension," *Henan Traditional Chinese Medicine*, vol. 31, no. 7, pp. 792–793, 2011.
- [66] L. Ling, Z. Shi-zhong, W. Hai-yan et al., "Acupoint Thread Embedding for Prehypertension Due to Phlegm-dampness: A Randomized Controlled Trial," *Shanghai J Acu-mox*, vol. 35, no. 12, pp. 1401–1404, 2016.
- [67] S. Jing, L. Baoguang, and L. Haizhou, "Effect of Body Six Acupoint Catgut Embedding on Serum Homocysteine in Primary Hypertensive rats," *Journal of Taishan Medical College*, vol. 31, no. 7, pp. 535–536, 2012.
- [68] L. Baoguang, S. Jing, and L. Haizhou, "Effect of Body Six Acupoint Catgut Embedding on Plasma SOD and MDA in Primary Hypertensive Rats," *Journal of North Pharmacy*, vol. 9, no. 8, pp. 67–68, 2012.
- [69] L. Baolin, S. Jing, and H. Jingwen, "Effect of Acupoint Catgut Embedding Method for Plasma endothelin, Serum Nitric Oxide of Primary Hypertension Model Rats," *China Medical Herald*, vol. 9, no. 8, pp. 20–21, 2012.
- [70] L. Yun, "Effect of Chinese medicine foot bath on 2 grade hypertension," *Inner Mongolia Journal of Traditional Chinese Medicine*, vol. 7, no. 37, pp. 94–95, 2018.
- [71] Z. Liu, C. Zhang, Y. Xu et al., "Discussion on the Treatment of Hypertension with Chinese Medicine Leg Foot Bath Therapy," *Henan Traditional Chinese Medicine*, vol. 33, no. 7, pp. 1092–1093, 2013 (Chinese).
- [72] X. Jiang, Y. Jianxue, and C. Feng, "Adjunct Effect of Plantar Reflex Therapy on Reducing abnormal diastolic pressure," *Chinese Journal of Microcirculation*, vol. 20, no. 3, p. 69, 2010.
- [73] C. Zhang, M. Jiang, and A. Lü, "Dialectical treatment of hypertension with traditional Chinese Medicine," *Henan Traditional Chinese Medicine*, vol. 31, no. 11, p. 1264, 2011.
- [74] W. Nannan and W. Xudong, "Research Progress on the Treatment of Primary Hypertension with Traditional Chinese Medicine Therapy," *Henan Traditional Chinese Medicine*, vol. 32, no. 2, p. 258, 2012.
- [75] Y. Tang, "Clinical Observation on Treating 60 cases of Hypertension in TCM," *Clinical Journal of Chinese Medicine*, vol. 9, no. 9, pp. 49–51, 2017.
- [76] W. Guoqin, "Clinical Observation of Traditional Chinese Medicine Foot Bath for Primary Hypertension," *Journal of Practical Traditional Chinese Medicine*, vol. 30, no. 6, pp. 548–549, 2014.
- [77] Y. Huang, Z. Zhenxian, and C. Zhixing, "Clinical Observation on Early Intervention of Pre-hypertension and Grade 1 Hypertension by ZHU Liangchun's Foot-bath Recipe," *Liaoning Journal of TCM*, vol. 42, no. 4, pp. 761–764, 2015.
- [78] Y. Cui, C. Rongxia, and D. Yunfang, "Effect of Warm Water Foot Bath Combined with Foot Massage," *Hebei Medical Journal*, vol. 34, no. 5, pp. 769–770, 2012.
- [79] L. Yunyan, "Analysis of Clinical Efficacy of Traditional Chinese Medicine Combined with Medicinal Pillow for Treating Hypertension," *Guide of China Medicine*, vol. 15, no. 23, pp. 190–191, 2017.
- [80] L. Wenhua, C. Yu, S. Wenbo et al., "Study on the Effect of Traditional Chinese Medicine Pillow in Prevention and Treatment of

Hypertension in the Community,” *Modern Traditional Chinese Medicine*, vol. 32, no. 2, pp. 21–23, 2012.

- [81] W. Feng and Z. Gao, “Clinical Effects Analysis and IMT Association Study of Drug Pillow in Treating Hypertensive Vertigo,” *Clinical Journal of Traditional Chinese Medicine*, vol. 28, no. 11, pp. 1576–1578, 2016.
- [82] Z.-H. Zhang, J. Deng, Y.-A. Zhang et al., “Clinical Observation on Treatment of Essential Hypertension by Semen Cassiae Application on Navel,” *Chinese Journal of Information on TCM*, vol. 21, no. 4, pp. 37–39, 2014.
- [83] R.-X. Liu, “Umbilical for Clinical Nursing of Patients with Hyperactivity of Liver Yang Hypertension,” *Cardiovascular Disease Journal of integrated traditional Chinese and Western Medicine*, vol. 3, no. 8, pp. 1-2, 2015.



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