

Observation of the Efficacy of Acupuncture in Patients with Hypertension

QT Wu, JW Gan, J Zhang

ABSTRACT

Objective: To investigate the efficacy of acupuncture in the treatment of hypertension in patients from April 2011 to May 2014.

Method: One hundred and six patients with hypertension were divided into two groups: 53 cases in the control group were on oral administration of nifedipine sustained-release (SR) tablets, and the 53 cases in the observation group were on oral nifedipine and acupuncture treatment.

Results: After four weeks of treatment, the two groups of patients had blood pressure readings before and after for comparison. The blood pressures of the observation group - the systolic blood pressure (SBP) and the diastolic blood pressure (DBP) - was significantly lower than that of the control group. The difference was statistically significant ($p < 0.05$). The systolic and diastolic blood pressures of the observation group were lower than before treatment.

Conclusion: Acupuncture therapy can significantly reduce the blood pressure in patients with hypertension. There were no obvious adverse reactions. Hence, acupuncture can significantly improve the quality of life of hypertensive patients.

Keywords: Acupuncture, blood pressure, hypertension

From: Chongqing City Management College, Chongqing 401331, People's Republic of China.

Correspondence: Mr Q Wu, Chongqing City Management College, No.151, Nan'er Road University Town, Hu'xi, Shapingba District, Chongqing 401331, China.
E-mail address: qwertasdfg_2016@126.com

INTRODUCTION

Hypertension is the most common cardiovascular disease in the world, contributing to the complications of the heart, brain, kidney and other organs', and seriously endangering the health of humans (1). In recent years, due to environmental pollution, work pressure, changes in diet content, psychological factors *etc*, the incidence of hypertension has increased continuously. China is a country with a high incidence of hypertension, and the control of hypertension is suboptimal. The reasons include: low awareness of the disease, and treatment non-compliance by patients(2).

There are many pathophysiological mechanisms of hypertension, and treatment with one of the traditional Chinese medicines called "acupuncture" is effective. Hypertension belongs to the traditional Chinese diseases in the "vertigo" and "headache" categories. The ancients used acupuncture to relieve such symptoms. Modern scholars also have done more research on acupuncture treatment of hypertension. Yu Hua proposed taking the Hegu, Neiguan, Quchi, Zusanli, Yanglingquan, Yinlingquan, Sanyinjiao as the primary acupoints. After syndrome differentiation, correspondingly reinforcing or reducing the manipulation and an adequate selection of acupoints was done. The total effective rate was 94% (3).

Wu Ming found that acupoint injection was not only an effective drug, but also has the characteristics of acupuncture (4). Through the liquid drug retention to the point, it can be a long time to maintain a benign stimulation to arouse the Qi, so as to improve its clinical efficacy. Our school that uses traditional acupuncture method for the treatment of hypertensive patients has recorded some success.

SUBJECTS AND METHODS

Clinical case collection

The standard diagnostic criteria for hypertension were selected according to *Medicine*, People's Medical Publishing House, where hypertension is divided into three levels: stage 1 hypertension 140–159/90–99mmHg, stage 2 hypertension 160–179/100–109 mmHg, and stage 3 hypertension $\geq 180/\geq 110$ mmHg. If the systolic blood pressure (SBP) and the diastolic blood pressure (DBP) are at different levels, the higher level was used as the standard (5). Of the 106 cases of the hypertensive patients sampled from April 2011 to May 2014, 48 cases were males and 58 were females. According to the classification of hypertension, 36 cases were at stage 1 hypertension; 45 cases were at stage 2 hypertension; and 25 cases were at stage 3 hypertension.

The patients were aged 49 to 70 years; their average age was 63.1 years. The duration of their disease was 2–22 years. The clinical diagnosis was in accord with the diagnostic standard for hypertension. Patients with secondary hypertension or malignant hypertension were excluded. The control of blood pressure was not within the scope of the standard procedure. The patients were without organ injury caused by hypertension. They were between 18 and 75 years of age. The patients' participation was voluntary. We randomly divided the cases into observation and control groups, and the two groups of patients were matched by gender, age, course of disease, and blood pressure before their treatment. The subjects were qualified to enter the treatment after the screening and the signing of their informal consent.

Table 1: Comparison of the general conditions of the groups

Group	Gender		Average Age (year)	Average course	SBP ^a (mmHg)	DBP ^b (mmHg)
	Female	Male				
Observation	28	22	63.62 ± 4.31*	13.85 ± 3.09*	160.53 ± 19.72*	92.65 ± 15.14*
Control	30	26	62.58 ± 3.94	15.47 ± 3.73	158.34 ± 20.66	88.02 ± 14.26

NOTE: **Compared with the control group ($p > 0.05$).*

The subjects who were in the trial and defaulted were contacted by all means to give a reason and a lost record was kept to complete the assessment. For the subjects leaving the study due to allergies or other side reactions or ineffective treatment, researchers should take appropriate treatment measures.

Shedding cases shall properly be reserved the relevant experimental data, both for leaving files and full analysis set the required statistics. Another complement for shedding cases is no need.

Therapeutic methods

The control group was treated with oral nifedipine GITS (Bai Xin) 30 mg/ once daily for four weeks as a course. The observation group had oral nifedipine and acupuncture. The basic treatment of acupuncture points followed were in accord with those of Feng Chi, Bai Hui, Tai Chong, Tou Wei, Nei Guan, Lie Que, TaiYang. Regarding the patients with different symptoms, and Meridian circulation, points were added or subtracted. For example: for GanYangShangKang headache, we added Tai Xi Xia Xi. For the lateral headache, we added Shuai Gu, Wai Guan; for the TanZhuoNeiZu headache, we added Feng Long, Yin Ling Quan; for the YuXueNeiZu headache, we added A Shi Xue, Xue Hai; for the Xue Xu headache, we added Qi Hai, Xue Hai, Zu San Li; and for the Shen Xu headache, we added Tai Xi, Shen Shu, Xuan Zhong. The patients were treated 30 minutes daily for four weeks at the selected acupuncture points.

Evaluation criterion

The assessment was based on the patients' blood pressure. The patients' blood pressure was measured three times. They were not expected to drink tea or coffee prior to their assessment. They were also required to be calm, have a short rest if emotionally disturbed or after strenuous exercise, and be in the sitting position using their left arm. All the averages of the

three blood pressure readings were recorded after four weeks of treatment. The same measuring methods, under the same conditions were used, and the average value was taken and compared with the former.

Statistical methods

Using SPSS13.0 statistical software analyses, means and standard deviation, the difference between the groups, using *t*-test, was statistically significant ($p < 0.05$).

RESULTS

The observation group's SBP was significantly lower compared with the control group's; and the difference between the two groups was statistically significant ($p < 0.05$). The SBP and DBP in the observation group, were significantly lower than before treatment; and the difference was statistically significant ($p < 0.05$, Table 2).

Table 2: A comparison of the systolic and the diastolic blood pressures of the two groups

Group	SBPa (mmHg)		DBPb (mmHg)	
	Before treatment	After treatment	Before treatment	After treatment
Observation	160.53 ± 19.72	122.48 ± 11.36* Δ	92.65 ± 15.14	76.33 ± 14.25*
Control	158.34 ± 20.66	135.20 ± 14.05*	88.02 ± 14.26	73.10 ± 16.49

NOTE: ^aSystolic blood pressure, ^bdiastolic blood pressure. * Before treatment ($p < 0.05$) Δ Compared with the control group ($p < 0.05$).

DISCUSSION

Hypertension is a disease mainly manifested in the form of consistent systemic arterial systolic and diastolic blood pressures. The incidence of hypertension in China is as high as

18.8% (6). Hypertension is a common clinical disease of the cardiovascular system. The incidence of hypertension increases annually; but, the mechanism is still not very clear. According to the literature, genetic factors, long-term smoking, alcoholism, obesity, lack of exercise and other factors are the risk factors for hypertension (). With the changes in peoples' lifestyles, the incidence rate of hypertension gradually increases and because of target organ damage to the heart, brain, kidney and other important organs the mortality rate of hypertensive patients gradually increases.

Clinical hypertension is divided into primary and secondary categories. Now known to be prone to a variety of pathogenic factors and causes, primary hypertension is mainly attributed to genetic and environmental causes (8). Examples of predisposing factors are: fetal malnutrition, overweight, high salt and low potassium diets. Secondary hypertension is mainly caused by renal factors: endocrine factors, common clinical causes such as renal parenchymal disease, renal artery stenosis, primary aldosteronism, phaeochromocytoma, Cushing's syndrome *etc.*

Hypertension has a typical "three high" epidemiological manifestation: high incidence, high disability rate and high fatality rate. At present, western medicine treatment of hypertension has been effective mainly because of the variety of antihypertensive drugs. Diuretics such as hydrochlorothiazide, chlorthalidone and furosemide are commonly used.

Central nervous system and sympathetic inhibitors that are used include: reserpine, verticil, and clonidine hydrochloride. The adrenergic blockers include: beta blockers such as propranolol and atenolol, alpha blockers such as benzene benzylamine, and alpha and beta blockers such as labetalol. Angiotensin converting enzyme inhibitors such as Kato Pury, enalapril and calcium channel antagonists such as: nifedipine and amlodipine are important adjuncts to treatment.

Vasodilators include: hydralazine, minoxidil, and prazosin. The ganglia and the

postganglionic sympathetic inhibitors include: guanethidine, tartaric acid, and methyl piperidine. Five-serotonin receptor antagonists include ketanserin. Compound preparations include: compound antihypertensive tablets, and compound apocynum tablets (10, 11). With the progress made on the investigations on the treatment of hypertension, current scholars found that Chinese medicinal treatment of hypertension recorded commendable efficacy. Through acupuncture, massage, Tai Chi and Qigong therapy of traditional Chinese medicine, the overall cardiovascular metabolism can be improved to enhance blood pressure reduction.

In ancient China, there was no name for hypertension. According to its symptoms and signs, it belonged to the motherland medicine "vertigo" category of "headache". Its poor prognosis can cause "oedema", "palpitations", "stroke" and so on (12). Ancient Chinese treatment of hypertension included: traditional Chinese medicine, acupuncture, cupping jar, and guasha. Acupuncture therapy was the most pre-eminent treatment (13). Acupuncture not only has a long history and rich experience, but also a curative effect, and its high safety is a major advantage in traditional Chinese medicine in the treatment of hypertension.

In this study - with a total of 106 patients, who had a course of acupuncture treatment - we concluded that the systolic and diastolic blood pressure values of the observation group were significantly decreased compared to those of the control group, and the systolic blood pressure values of the two groups were statistically significant ($p < 0.05$). The observation group's systolic and diastolic blood pressure readings after treatment were lower compared with those before treatment, and this was statistically significant ($p < 0.05$). The results of this study showed that, acupuncture therapy can effectively reduce blood pressure in hypertensive patients, improve their quality of life and is safe.

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