

Original Article

Acupoint massage nursing conducive to improve curative effect of the obesity patients who are complicated with hypertension and are treated by oral drugs

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Abstract: Objective: observe the curative effect of the simple obesity patients who are complicated with hypertension and are treated by oral drugs under the adjuvant treatment of acupoint massage nursing. Methods: a total of 42 patients, who suffer from simple obesity but are complicated with mild to moderate hypertension, are selected and then randomly divided into an observation group and a control group by the digital table method. Each group consists of 21 patients. The patients in the control group are treated by the normal oral drugs, while those in the observation group are intervened by acupoint massage except the normal oral drug treatment provided for the control group. Respectively test the body fat percentage content, blood fat and blood pressure indicators of the selected patients in the two groups before treatment and after 12 weeks' treatment. Results: after 12 weeks' treatment, systolic blood pressure, diastolic blood pressure and blood fat indicators of the patients in the control group are improved significantly compared with those before treatment, $P < 0.05$, but their percentage of body fat does not change significantly, $P > 0.05$; systolic blood pressure, diastolic blood pressure, blood fat and body fat percentage of the patients in the observation group are significantly improved compared with those before treatment and their improvement effect is better than that of the control group, $P < 0.05$. Moreover, the relapse rate of the patients in the observation group, who have been cured, is also obviously lower than that of the control group. Conclusion: as for the simple obesity patients who are complicated with hypertension, if they accept acupoint massage stimulation therapy, assisted with oral drugs for treatment, their curative effect is obviously superior to that of the single drug treatment.

Keywords: Acupoint massage, physical therapy, drug, combination, hypertension, curative effect

Introduction

Hypertension is a common clinical disease and the overwhelming majority of hypertension patients suffer from mild and moderate hypertension. The blood pressure of such patients may increase further due to their negligence for the treatment and then it may result in complication of heart, brain, kidney and other diseases, which seriously harm their mental and physical health and affect the quality of life [1, 2]. In recent years, the people, who suffer from hypertension, tend to be younger, which is closely related to their living habits, for exam-

ple, the incidence rate of simple obesity is increased rapidly as a result of improvement of living standards, overeating, on-balanced diet, lack of exercise and the reduced physical activity. Thus, the hypertension complication, induced by the simple obesity, has been the most common morbidity factor among the hypertensive patients [3, 4]. At present, the common way in the treatment of hypertension is oral drug; however, it may damage the patient's liver and kidney if the drugs are taken for a long-term. Among the related auxiliary treatment methods, the effect of acupuncture, diet and aerobic weight loss and other auxiliary

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Table 1. Comparison of general information for the patients in the two groups ($\bar{x} \pm s$)

Group	Male/female (Quantity)	Height (cm)	Body weight (kg)	Age	Obesity disease course (Year)	Hypertension disease course (Month)	Hypertension disease	
							Mild	Moderate
Control group	8/13	163.7 ± 5.01	71.6 ± 7.51	47.8 ± 5.71	9.8 ± 3.17	16.1 ± 8.26	4	17
Observation group	9/12	164.4 ± 5.32	72.7 ± 7.29	46.6 ± 6.50	10.5 ± 4.06	18.5 ± 9.02	5	16

Note: $P > 0.05$.

Table 2. Comparison of body fat indicators for two groups of patients before and after this treatment ($\bar{x} \pm s$)

Group	Male/female (Quantity)	Body weight (kg)		Body fat percentage (%)	
		Before treatment	After treatment	Before treatment	After treatment
Control group	8/13	71.6 ± 7.51	69.5 ± 7.17	45.4 ± 7.30	43.2 ± 7.14
Observation group	9/12	72.7 ± 7.29	66.3 ± 6.02 ^a	46.1 ± 7.24	36.9 ± 6.62 ^{a,b}

Note: Internal group comparison before and after this treatment, ^a $P < 0.05$; compare the observation group with the control group at the same time point after treatment. ^b $P < 0.05$.

treatment methods are commonly recognized by doctors and patients. In this study, Chinese medicine acupoint massage is based on regulating the microcirculation of the human body. The obesity patients, who are complicated with hypertension, are treated by the oral drugs under the auxiliary treatment of acupoint massage nursing. Upon discussing the mechanism of promoting the microcirculation and metabolism of the human body by the acupoint massage, it intends to observe the effect on the blood pressure indicators of the hypertension patients. After the treatment in practice, it is found that its curative effect is obviously better than the single oral drug and the reports are followed.

Materials and methods

Study object

By referring to the clinic diagnosis standards of the simple obesity and hypertension [5, 6], 42 simple obesity patients, who are complicated with mild and moderate hypertension and visit the doctors in the outpatient of the First Affiliated Hospital of Zhengzhou University, are selected for the practice study in this study. All subjects are obese patients with secondary hypertension and their hypertensive disease is mild and moderate. The study excludes the severe hypertension patients, who are complicated with the severe heart, brain, liver, kidney dysfunction, pregnant women and other patients who can't accept the practice treatment. And the selected patients are informed

of such situations and they are voluntary to coordinate the practice treatment. Use the random digital table method to divide 42 patients into an observation group and a control group and each group consists of 21 patients. The age of the patients in the observation group ranges from 26-54 years old and the minimum obesity disease course is 2.5 years and the maximum disease course is 23 years. The minimum hypertension disease course is 3 months and the maximum one is 6 years. The age of the patients in the control group ranges from 28-55 years old and the minimum obesity disease course is 2.5 years and the maximum disease course is 22 years. The minimum hypertension disease course is 2 months and the maximum one is 5 years. General information of the patients in the two groups is shown in **Table 1** and the inter-group data shows no obvious difference ($P > 0.05$) upon the statistical consistency comparison and they are comparable.

Treatment methods

The control group: Orally take Captopril Tablets, 2 times daily, 12.5 mg each time. No additional treatment is provided. *The observation group:* in addition to take same oral drugs with the control group, the patients are treated by the acupoint massage method. The mainly selected acupoints are Zusanli, Juegu, Yongquan and Quchi. Professional traditional Chinese mesagist provides the message therapy for the patients in the observation group. Massage methods are as follows: after selecting the

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Table 3. Comparison of Blood fat indicators for two groups of patients before and after this treatment ($\bar{x} \pm s$)

Group	Male/ female (Quantity)	TC (mmol/L)		TG (mmol/L)		LDL-C (mmol/L)		HDL-C (mmol/L)	
		Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group	8/13	5.74 ± 0.31	4.71 ± 0.29 ^a	2.32 ± 0.25	2.01 ± 0.23 ^a	3.14 ± 0.30	2.77 ± 0.28 ^a	1.12 ± 0.13	1.31 ± 0.17 ^a
Observation group	9/12	5.76 ± 0.32	4.05 ± 0.30 ^{a,b}	2.33 ± 0.26	1.69 ± 0.22 ^{a,b}	3.16 ± 0.29	2.42 ± 0.25 ^{a,b}	1.11 ± 0.12	1.50 ± 0.19 ^{a,b}

Note: Internal group comparison before and after this treatment, ^a*P* < 0.05; compare the observation group with the control group at the same time point after treatment ^b*P* < 0.05.

Table 4. Comparison of blood pressure indicators for two groups of patients before and after this treatment ($\bar{x} \pm s$)

Group	Male/female (Quantity)	Systolic pressure (mmHg)		Diastolic pressure (mmHg)	
		Before treatment	After treatment	Before treatment	After treatment
Control group	8/13	152.4 ± 6.73	135.9 ± 6.72 ^a	101.5 ± 5.44	90.3 ± 4.52 ^a
Observation group	9/12	153.3 ± 7.02	126.0 ± 5.46 ^{a,b}	102.7 ± 5.71	84.5 ± 4.07 ^{a,b}

Note: Internal group comparison before and after this treatment, ^a*P* < 0.05; compare the observation group with the control group at the same time point after treatment ^b*P* < 0.05.

massage acupuncture points, firstly, gently knead the acupoints and their surrounding muscle tissues until the skin becomes reddish or feels a burning heat sensation so as to fasten blood circulation of the muscle tissue. Then, use the thumb to press acupoints selected and the pressing strength depends on whether the patients can endure the pain. This process lasts for about 1 minute and then the same method is used to knead and stimulate the next acupoint. In the method, the massage therapy is provided once a day and 3 or 4 times are acceptable to each acupoint. Massage therapy lasts for 40 minutes each day. The selected patients in the two groups are treated for 6 weeks, which is a treatment course. Estimate the curative effect after 2 treatment courses.

Note: The two groups of patients will not be provided with any other additional treatments during the treatment period. Additionally, the doctors advise of the patients that they should, on the premise of ensuring adequate sleep, eat light food and avoid impatience emotion as far as possible in the treatment process.

Evaluation of curative effect

Respectively test and evaluate the subjects' body fat, blood fat, blood pressure, anti-hypertension curative effect, the recurrence rate after cure and other indicators.

Test weight and body fat percentage: JS7-G65 type human body composition analyzer, pro-

duced by Beijing Midwest Yuanda Technology Co., Ltd., is used to test and the required data is directly output based on the machine set programs.

Test blood fat indicators: Japanese Olympus 2700 automatic biochemical analyzer is used to respectively test the blood fat indicators of the subjects. The two groups of patients stop any treatment two days before the detection of blood fat and they also stop eating any high fat food in the evening before the examination. In the next morning, their venous blood is drawn for examination under the empty stomach condition. The blood fat examination indicators include: TC (Total cholesterol), TG (Triglyceride), LDL-C (Low density lipoprotein cholesterol) and HDL-C (High density lipoprotein cholesterol) as well as other indicators that can reflect the blood fat of the patients.

Test blood pressure indicators: HEM-7051 type electronic upper arm hamnatodynamometer, produced by OMRON Healthcare Co., Ltd., is used to test systolic and diastolic blood pressure of the patients. In order to ensure the accuracy of the examination data, each patient shall be tested once respectively in the morning, noon and evening and then average value of each patient is taken as his/her statistics blood pressure value for statistics and comparison.

Assessment of antihypertensive effect: By referring to *Guiding Principles for New Medicine*

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Table 5. Comparison of antihypertensive efficacy for two groups of patients after this treatment ($\bar{x} \pm s$)

Group	Male/female (Quantity)	Cure (Quantity)	Markedly effective (Quantity)	Effective (Quantity)	Ineffective (Quantity)	Total effective rate (%)
Control group	8/13	6	5	6	4	80.95
Observation group	9/12	10 ^a	6	4	1	95.24 ^b

Note: comparison of inter-group antihypertensive efficacy, cure: ^a $P < 0.05$; total effective rate: ^b $P < 0.05$.

Table 6. Comparison of cure rate and recurrence rate for two groups of patients after this treatment ($\bar{x} \pm s$)

Group	Male/female (Quantity)	Cure rate after 8 weeks		Recurrence rate within 3 months of the cure	
		Cured patients	Cure rate (%)	Recurrence patients	Recurrence rate (%)
Control group	8/13	6	28.57	2	33.33
Observation group	9/12	10	47.62 ^a	1	10.00 ^b

Note: comparison of cure rate: ^a $P < 0.05$; recurrence rate: ^b $P < 0.05$.

Clinical Research in Traditional Chinese Medicine published by Chinese Pharmaceutical Science and Technology Publishing House in 2002, based on the proportion of antihypertensive effect, it is divided into four categories: cure, markedly effective, effective and ineffective.

Follow-up and interview: After 12 weeks' treatment, the cured patients in the 2 groups are followed up and interviewed for 3 months in total in order to observe their recurrence rate. Respectively test blood pressure indicators of the cured patients at the third month after their cure.

Statistical analysis

Use SPSS 13.0 version statistical software to statistically compare body fat and blood pressure measurement data for the patients in the two groups before and after the treatment and then compare the internal group data before and after the treatment as well as compare the improvement effect of the inter-group data after the treatment. Data is expressed by ($\bar{x} \pm s$). The measurement data is compared by using t test, while the count data is compared by using χ^2 test. $P < 0.05$ indicates that the difference has the statistical significance.

Results

Before this treatment, upon the statistical consistency comparison for general information of the patients in the two groups, the inter-group data shows no obvious difference ($P > 0.05$),

shown in **Table 1**. It can be shown from **Tables 2-4** that after 12 weeks' treatment, both systolic blood pressure and diastolic blood pressure of the patients in the control group are improved significantly compared with those before treatment, ^a $P < 0.05$, but their body weight and body fat indicators are not improved obviously; Body fat, blood lipid, systolic blood pressure and diastolic blood pressure of the patients in the observation group are improved significantly compared with those before treatment, ^a $P < 0.05$. The improvement effect, after the treatment, is obviously superior to that of the control group, ^b $P < 0.05$. Although their weight is not changed obviously compared with that before this treatment, body fat percentage and blood lipid indicators are improved significantly compared with those before this treatment and those of the control group, ^a $P < 0.05$ or ^b $P < 0.05$. It can be seen from comparing antihypertensive efficacy that 6 and 10 patients respectively from the observation group and the control group are cured and total effective rate is 80.95% and 95.24% respectively (See **Table 5**); the cured patient quantity and total effective rate of the observation group are significantly higher than those of the control group (^a $P < 0.05$) and the recurrence rate is significantly lower than that of the control group (^b $P < 0.05$) (**Table 6**).

Discussion

At present, cardiovascular disease is a disease with the highest incidence and mortality worldwide and hypertension is an important factor in

inducing cardiovascular and renal diseases. Thus if hypertension is not effectively controlled, it is easy to develop into a lethal pathogen and it has become a serious health killer hazardous to human [7, 8]. Hypertension pathogen is complex and it is induced by many factors, such as heredity, environment, age, diet and living habits as well as individual constitution is about [9]. Traditional Chinese medicine believes that most of obesity patients, who are complicated with hypertension, suffer from spleen, liver, kidney disorders because of insufficient genetic, emotional instability, improper diet and weak body. As a result, it leads to nervous system and endocrine disorders, while it disorders the regulation function of the cerebral cortex and subcortical vascular vasomotor center. Once the resistance of arterioles in the whole body increases or blood circulation volume increases and such symptoms last for a long time, hypertension may be developed [10, 11]. Captopril (a western medicine) is competitive angiotensin converting enzyme inhibitor. It can expand peripheral vascular through the degradation of interference bradykinin and then achieve the antihypertensive effect. At present, the drug is a commonly used oral drug and its efficacy has been widely recognized by both doctors and patients. In this study, after the control patients are treated by oral Captopril for 12 weeks, their blood pressure indicator is significantly improved compared with that before treatment. Compare systolic blood pressure and diastolic blood pressure with those before treatment, $P < 0.05$. Among 21 patients, 6 patients are cured and the total effective rate is 80.95%. The treatment effect conforms to the related research reports.

Acupoint massage in the traditional Chinese medicine is a therapy method to regulate internal circulation of the human body. Zusanli acupoint, selected in this study, an important acupoint to regulate stomach collateral channels and it is one of the most commonly used acupoints for the people's healthcare. In traditional Chinese medicine, it believes that Zusanli is not only an acupoint to regulate spleen and stomach, but also nourish Qi and blood, strengthen body, reinforce immunity and regulate the nervous and endocrine systems [12, 13]. It is proven by the modern medicine experiment that massage of Zusanli can reduce the content of cholesterol in the blood and purify blood and then it can remarkably reduce blood lipids and

blood pressure [14]. Juegu acupoint is a main collateral channel to regulate liver and bile. In traditional Chinese medicine, it believes that liver and bile stagnation is an important cause of hypertension. Juegu acupoint can be stimulated by the massage to dredge liver and bile and it is conducive to recover the normal blood pressure. Yongquan acupoint is an important point to regulate renal collateral channels. Yongquan acupoint can be stimulated by the massage to condition kidney, promote the circulation of Qi and blood and benefit to reduce blood pressure. Quchi acupoint can regulate large intestine collateral channels. By the study, Yang DH [15] confirms that by stimulating Quchi acupoint, it can bring a significant antihypertensive effect and its antihypertensive effect is stable, which is used as a daily auxiliary treatment measure for the refractory hypertension patients. Other studies indicate that the human body can dredge collateral channels and activate blood by the massage of skin and its corresponding acupoints. In this way, it can expand the local vessel, accelerate the blood circulation, improve the nutritional status of the local tissues and fasten the pathological product excretion and absorption, meanwhile, the regulatory mechanism of collateral channels, combining the skin massage with acupressure, is more conducive to the self-regulation of the human body microcirculation. Muscle massage can expand and soften local blood vessels. Acupressure stimulation can dredge the main and collateral channels, improve body fat and blood fat and then reduce the blood viscosity and regulate blood pressure [16, 17].

It can be seen from the above information that it not only can regulate transport and digestive functions of spleen, stomach, liver, gallbladder and large intestine collateral channels through the massage of Zusanli, Juegu, Yongquan and Quchi, but also conducive to human lipid metabolism. Related results of acupuncture weight loss indicate that it not only can regulate and improve the digestive function of the human intestine and stomach by acupuncture, moxibustion or pressing the relevant acupoints, even inhibit the human appetite, which plays an important role in eliminating fat and weight loss on the human body. In this study, after the patients in the observation group take oral drugs and accept acupoint massage stimulation for 12 weeks, it is found that their blood pressure, blood fat and the per-

centage of body fat are improved significantly compared with those before the treatment and their improvement effect is significantly better than the control group, $P < 0.05$; it can be seen from the comparison of the antihypertensive efficacy that the cure rate and total effective rate are significantly better than the control group, $P < 0.05$. After 3 months' follow-up and interview of the cured patients in the two groups, the recurrence rate of the observation group is significantly lower than the control group, which is caused by improvement of the physical function of the patients due to acupuncture massage.

To sum up, after the single oral medication for 12 weeks, there is no significant change in the body fat index of the patients but their antihypertensive effect is obvious compared with that before treatment; the combined group not only has significant antihypertensive effect, but also the evaluation of curative effect, blood fat index and body fat percentage improvement effect are significantly better than those of the treatment group who only take the oral drugs and after the patients are cured, their recurrence rate is low. The results suggest that the combined treatment can treat symptoms and solve the root problems and it is conducive to the elimination of fat and the improvement of blood pressure, so its curative effect is more remarkable than the treatment group who just take the oral drugs.

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Disclosure of conflict of interest

None.

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