

## The efficacy of wet cupping in the treatment of hypertension

Mohammad Zarei<sup>(1)</sup>, Shirin Hejazi<sup>(2)</sup>, Seyed Ali Javadi<sup>(3)</sup>, Hojatollah Farahani<sup>(4)</sup>

### Abstract

**BACKGROUND:** Wet cupping is an old method that is still used in medicine, but few empirical studies have been done about its effect on hypertension. The purpose of this research was to study the effect of wet cupping on blood pressure in 35-60 year old patients who were diagnosed with hypertension.

**METHODS:** This study was a random, controlled, clinical trial and samples were 42 patients who referred to Imam Hussein Clinic of Quchan. Samples were determined by purposive sampling method and divided randomly into two groups. Samples of the cupping group were prescribed a series of 3 staged wet cupping treatments at 2 week intervals, and the participants in the control group were only prescribed medication. Blood pressure was measured (for the two groups) at the base line and at 42 days post treatment. Analysis was done by SPSS software version 17. Statistical methods used included independent t-test, paired t-test, and Fisher's exact test.

**RESULTS:** The study subjects of wet cupping and control groups do not show significant difference in the independent t-test for age, body mass index, duration of hypertension, and duration of antihypertensive drugs, and the two groups are homogeneous with  $P = 0.983$ ,  $P = 0.682$ ,  $P = 0.770$ , and  $P = 0.540$  respectively. Independent t-test results showed a significant difference in systolic blood pressure in the cupping group before and after wet cupping course ( $P < 0.05$ ).

**CONCLUSION:** With regard to the increasing use of wet cupping in the treatment of a wide group of illnesses and the clients' satisfaction, presenting suitable and proper use, informing people about its usage, and supervising the above-mentioned centers should be considered by authorities.

**Keywords:** Blood Pressure, Wet Cupping, Complementary Medicine, Hypertension

**ARYA Atherosclerosis Journal 2012, 8(Special Issue in National Hypertension Treatment): ???-???**

*Date of submission:* 29 Jan 2012, *Date of acceptance:* 2 Jun 2012

### Introduction

Hypertension is one of the most common risk factors for cardiovascular and renal diseases.<sup>1</sup> The annual rate of hypertension development, or incidence, is difficult to determine because hypertension goes undiagnosed in many cases.<sup>2</sup> With the current growth rate, the prevalence of hypertension is expected to be more than one billion people in 2025.<sup>3</sup> Hypertension in the Iranian population is 25% and 32% in adults.<sup>4</sup>

The side effects of antihypertensive drug therapy can sometimes cause patients to turn to complementary therapies, hoping that such treatments might improve their symptoms.<sup>5</sup> Complementary therapies are one of the most frequently used by patients with hypertension. One such treatment option is cupping.<sup>6</sup> Cupping is a traditional, physical treatment used by acupuncturists or other therapists, who utilize a bamboo or glass cup

to create suction on the skin over a painful area or acupuncture point.<sup>7</sup> There are two types of cupping; dry and wet cupping. Dry cupping pulls the skin into the cup without drawing blood. However, in wet cupping the skin is lacerated so that blood is drawn into the cup.<sup>8</sup> Cupping is used to improve subcutaneous blood flow circulation and to stimulate the autonomic nerves system. In clinical practice, cupping is often used to decrease blood pressure (BP) and relieve symptoms of hypertension, such as headaches and anxiety.<sup>9</sup>

A recent systematic review included two trials on the effects of cupping (one wet cupping, and the other dry cupping) on hypertension. Its findings suggested that positive effects of cupping for hypertension may be seen in real clinical practice in the patients evaluated for this therapy; favorable results were also seen in the two included trials.<sup>9</sup>

1- MSc, Department of Nursing, Quchan Branch, Islamic Azad University, Quchan, Iran

2- MSc, School of Nursing, Tehran Medical Branch, Islamic Azad University, Tehran, Iran

3- Iran Institute of Research on Hejamat, Quchan, Iran

4- School of Psychology, Tehran Medical Branch, Islamic Azad University, Tehran, Iran

Correspondence To: Mohammad Zarei, Email: m.zarei51@yahoo.com

Together, available evidence and historical precedent suggest cupping therapy might be an effective treatment for high blood pressure, but rigorous scientific trials are lacking. The present study was designed to contribute to that need.

### Materials and Methods

This study included a random, controlled, clinical trial and samples were 42 patients who referred to Imam Husain Clinic of Quchan. These patients were diagnosed with hypertension without having a chronic disease by the cardiologist of the clinic. They were being treated with antihypertensive drugs and had the eligibility criteria; age of 35 to 60 years, had no record of wet cupping and/or other complementary treatments in the previous 3 months, they were not alcoholic, addicted, or pregnant, and had no specific causes of stress. Patients were excluded if they were receiving another complementary treatment during the period of this study.

Samples were determined through purposive sampling method and then were homogenized by age, sex, body mass index, and time of medication. Patients were randomly allocated to each group. The instrument for data collection was a questionnaire consisting of three parts. The first part of the questionnaire included the demographic information. Part two consisted of the information about the disease and hypertension, and part three about wet cupping. Sheets were respectively completed for the samples. The tools for collection of information on blood pressure were Japanese mercury ALPK2 and a German digital scale with Heliometers' height meter, sterile disposable cups with valve, No. 15 scalpel, electric suction device, sterile dressing and iodine povidone (beta dine), and hypoallergenic plast. Validity and reliability were obtained through content validity methods and test-re-test. The study was done after obtaining the Medical Ethics Committee's approval and informed consents from the subjects.

During the 6 weeks that both groups were taking antihypertensive medication and at the beginning and end of the study the participant's blood pressures were measured.

Samples of the cupping group were prescribed a series of 3 staged wet cupping treatments at 2 week intervals (i.e. 0 days, 14 days, and 28 days). The site for wet cupping was between the two scapulas, opposite the T1-T3 scapular spine. Each wet cupping treatment procedure took about 20 minutes. The protocol for performing cupping was as follows: the skin was disinfected, scarification (puncturing) of the skin was carried out by repeatedly puncturing it superficially with sterile 15-gauge surgical blades (number of incisions: 5 to 10), the vacuum cups were applied and the air within the cup was rarefied by manual mechanical suction, the cupping glasses were removed after 3 to 5 minutes, and the treated area was bandaged afterwards. Each patient was cupped three times within two weeks. The control group was treated with medication alone. Blood pressure was measured (for the two groups) at the baseline and at 42-days post treatment.

Data analysis was conducted by SPSS software version 17 in 2 steps. First, the descriptive statistics were considered. Second, paired t-tests were computed to compare pre-treatment and post-treatment measures of blood pressure (systolic and diastolic blood pressure). We also compared the two groups by independent t-tests.

### Results

One of the affective factors on the validity of the results is the homogeneity of samples within the two groups. Therefore, both groups were tested based on statistical formulas and the following results were obtained. As shown, the control and intervention groups were quite similar in age, sex, body mass index, and time of antihypertensive medications (Tables 1-3).

**Table 1.** The frequency distribution table for the patients with hypertension based on the age and body mass index within the two groups

	Cupping Group		Control Group		Result of Independent t-test
	Mean ± SD	Number	Mean ± SD	Number	
Age	51.19 ± 6.05	21	51.29 ± 6.38	21	t = -0.50 df = 40 P = 0.961
BMI*	25.78 ± 2.84	21	26.04 ± 3.11	21	t = -0.281 df = 40 P = 0.780

\* Body mass index

**Table 2.** The frequency distribution table for the patients with hypertension based on the time of antihypertensive medications within the two groups

Time	Group	Cupping Group		Control Group		Result of Test
		Number	Percentage	Number	Percentage	
Night		17	81.0	17	81.0	Fisher's Exact Test = 0.116 P = 1.000
Morning and Night		4	19.0	4	19.0	

**Table 3.** The frequency distribution table for the patients with hypertension based on sex within two groups

Sex	Group	Cupping Group		Control Group		Result of Test
		Number	Percentage	Number	Percentage	
Male		11	52.4	11	52.4	$\chi^2 = 0.000$ d.f = 40 P = 1.000
Female		10	47.6	10	47.6	

**Table 4.** Comparison of the means of systolic and diastolic blood pressures at the beginning and end of the study (cupping group)

	Mean $\pm$ SD		Result of Paired t-test
	Beginning Of The Study	End Of The Study	
mean of SBP*	151.1 $\pm$ 17.8	141.2 $\pm$ 10.1	t = 4.356 df = 20 P = 0.001
mean of DBP**	93.2 $\pm$ 7.8	92.7 $\pm$ 4.3	t = 0.502 df = 20 P = 0.621

\* Systolic blood pressure

\*\* Diastolic blood pressure

**Table 5:** Comparison of the means of systolic and diastolic blood pressure at the beginning and end of the study (control group)

	Mean $\pm$ SD		Result of Paired t-test
	Beginning Of The Study	End Of The Study	
mean of SBP*	141.1 $\pm$ 18.3	141.3 $\pm$ 12.4	t = -0.065 df=20 P=0.948
mean of DBP**	88.9 $\pm$ 10.4	87.7 $\pm$ 6.0	t = 0.571 df=20 P=0.575

\* Systolic blood pressure

\*\* Diastolic blood pressure

The average age of subjects was  $51.2 \pm 6.2$ , so that the age ranges between 39 to 60 years were considered. Results of independent t-test showed that there was no correlation between the means of the two groups according to their ages.

The mean body mass index (BMI) of subjects was  $25.9 \pm 2.9$ . Results of independent t-test showed that there was no correlation between the means of the two groups regarding their BMI.

As for the sex of subjects, 52.4% (22 patients) were males and 47.6% (20 patients) females. Results of chi-square test showed that there was no correlation between the means of the two groups considering sex, and that the two groups were

homogenous.

Results of Fisher's exact test showed that within the two groups the correlation between marital status, occupation, and type and time of medication was not significant; in fact the two groups were homogenous.

The results of paired t-test showed that there was a significant difference between the means of systolic blood pressure at the beginning and end of the study in the cupping group ( $P < 0.05$ ) (Table 4).

The results of paired t-test showed that there was no significant difference between the means of systolic and diastolic blood pressures at the beginning and end of the study in the control group ( $P < 0.05$ ) (Table 5).

**Table 6:** Comparison of the means of the difference of systolic and diastolic blood pressure at the beginning and end of the study

	Cupping Group		Control Group		Result of Independent t-test
	Mean ± SD	Number	Mean ± SD	Number	
means of the difference of SBP*	9.71 ± 10.8	21	-0.19 ± 15.4	21	t = 2.408 df = 40 P = 0.021
means of the difference of DBP**	0.57 ± 5.3	21	1.14 ± 10.1	21	t = -0.231 df = 40 P = 0.819

\* Systolic blood pressure

\*\* Diastolic blood pressure

Moreover, in line with the main aim of the study, the results of independent t-test showed that there was a significant difference between the means of the difference of systolic blood pressure at the beginning and end of the study in the two groups ( $P < 0.05$ ) (Table 6).

### Discussion

Generally, the results of the study showed that after a three-session wet cupping the mean hypertension of the subjects with systolic and diastolic blood pressure at the end of the study was reduced. Furthermore, the results of independent t-test showed a significant difference between the means of systolic blood pressure at the beginning and end of the study for the two groups.

In connection with the effect of phlebotomy on hypertension, Lee et al. quoted Guo (1999) that, performing three sessions of cupping on the samples showed 71% reduction in their hypertension.<sup>9</sup> Our results are consistent with these findings.

In fact, based on these studies regarding the effects of cupping treatment, it seems that cupping reduces BP, and hence can prevent its clinical effects.

### Acknowledgments

The researchers wish to thank the staff of Imam Husain clinic of Quchan who helped in conducting the study and gave us their support and cooperation throughout this study.

### Conflict of Interests

Authors have no conflict of interests.

### References

1. Lee RD, Nieman DC. Nutritional Assessment. New York, NY: McGraw-Hill Higher Education; 2007.
2. Moser DK, Riegel B. Cardiac Nursing: A Companion to Braunwald's Heart Disease. Philadelphia, PA: Elsevier Health Sciences; 2008.
3. Kaplan NM, Victor RG. Kaplan's Clinical Hypertension. Philadelphia, PA: Lippincott Williams & Wilkins; 2009.
4. Mohammadi MA, Dadkhah B, Sezavar SH, Mozafari N. Efficacy of following up control blood pressure in patient with hypertension. J Ardabil Univ Med Sci 2006; 6(2): 156-62. [In Persian].
5. Nahas R. Complementary and alternative medicine approaches to blood pressure reduction: An evidence-based review. Can Fam Physician 2008; 54(11): 1529-33.
6. Rezaeizade H. Traditional Medicine Strategy of World Health Organization. Tehran, Iran: Tehran Medical University Publication; 2005. p. 98. [In Persian].
7. Chirali IZ. Traditional Chinese Medicine Cupping Therapy. Philadelphia, PA: Elsevier Health Sciences; 2007.
8. Kim JI, Lee MS, Lee DH, Boddy K, Ernst E. Cupping for treating pain: a systematic review. Evid Based Complement Alternat Med 2011; 2011: 467014.
9. Lee MS, Choi TY, Shin BC, Kim JI, Nam SS. Cupping for hypertension: a systematic review. Clin Exp Hypertens 2010; 32(7): 423-5.

**How to cite this article:** Zarei M, Hejazi Sh, Javadi SA, Farahani H. **The efficacy of wet cupping in the treatment of hypertension.** ARYA Atherosclerosis Journal 2012; 8(Special Issue): ???-???.