Effect of Acupressure on Postmenopausal Hypertension

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ABSTRACT

This study was conducted to determine the effect of acupressure on postmenopausal hypertension. Sixty women after menopause complained from hypertension (diagnosed by gynecologist/ physician) from Geriatric Center for Physical Therapy and Rehabilitation in Palestine Hospital in Cairo, shared in this study. Their ages ranged from 50 to 65 years old, their blood pressure was ranged from 140/90 to 175/110 mmHg and they were in post menopause for at least one year. The study was conducted from 17 January to 15 March 2011. They were classified into two groups equal in number; group (A) received medications only while group (B) received medications and acupressure sessions. Blood pressure was evaluated by the sphygmomanometer before and after 6 weeks of the acupressure sessions. The obtained results showed a statistically highly significant decrease (P<0.01) in blood pressure measurements after acupressure sessions for group (B) more than group (A). Conclusion; it could be concluded that the acupressure is very effective in reducing hypertension in postmenopausal women.
Key words: Acupressure, Postmenopause, Systolic blood pressure, Diastolic blood pressure.

INTRODUCTION

Menopausal symptoms are the time when the body reacts to dropping levels of estrogen &other hormones. Every woman will experience this differently but it varies from women to another. Menopausal symptoms, some are very common, some less common and some are serious and shouldn't be ignored. Common menopausal symptoms include menstrual irregularities, hot flash, night sweats, mood swing, headache, insomnia, vaginal dryness, urinary problems, weight gain, memory and cognitive change and fatigue. The dangerous symptoms are heavy bleeding, heart palpitation, depression and high blood pressure[15].

The reduced levels of hormones can increase the risk of various health problems in the long term. These include: osteoporosis (loss of bone density) - bones become brittle and break more easily, heart disease, increasing the risk of having a heart attack, stroke and weakness of the pelvic floor and vaginal muscles[17].

After age 50, about 30-50% of women develop hypertension (>140\90 mmHg). High blood pressure might be the first sign that cardiovascular system is beginning to show some wear &tear[13]. In premenopausal women, endogenous estrogens maintain vasodilatation and thus contribute to blood pressure control. The first decade after menopause is accompanied by an increase in blood pressure. Specifically, there are pronounced increases in both systolic blood pressure and pulse pressure in postmenopausal women, whereas diastolic blood pressure remains at a similar level compared with age-matched men[6].

Women going through menopause often experience a loss of elasticity in the carotid artery, the aorta, and other large arteries. This loss of elasticity makes it more difficult for the arterial wall to expand and contract with each heartbeat. Over time, this failure can lead to the enlargement of the heart: the heart muscle itself grows as a result of the difficulty in pumping blood through an inelastic arterial system. This in turn can lead to hypertension and heart disease. Some studies had also suggested that the activation of the renin-angiotensin system increased the risk of menopausal women contracting hypertension[1].

Menopause acts directly as a risk factor by reducing the direct beneficial effect of ovarian hormones upon cardiovascular functions and indirectly by negatively influencing other traditional risk factors for coronary artery disease (i.e. hyperinsulinaemia, blood cholesterol, blood pressure, coagulation, etc.). Mild to moderate hypertension may cause complications such as non specific chest pain, sleep disturbance, headache, palpitation, hot flash, anxiety and depression. Women with family history or

with a history of hypertension in pregnancy are at increased risk to develop it during menopause[3].

Menopause is a risk factor for cardiovascular disease (CVD) because estrogen withdrawal has a detrimental effect on cardiovascular function and metabolism. The menopause compounds many traditional cardiovascular disease risk factors (CVRFs), including changes in body fat distribution from a gynoid to an android pattern, reduced glucose tolerance, abnormal plasma lipids, increased blood pressure, increased sympathetic tone, endothelial dysfunction, and vascular inflammation[16].

The mechanisms responsible for the postmenopausal increase in blood pressure are yet to be elucidated. Various humeral systems have been proposed to play a role in postmenopausal hypertension, such as changes in estrogen/androgen ratios, increases in endothelin and oxidative stress, and activation of the renin-angiotensin system (RAS). In addition, obesity, type II diabetes, and activation of the sympathetic nervous system are common in postmenopausal women and may also play important roles[8].

The decline in the estrogen/androgen ratio dilutes the vasorelaxant effects of estrogen on vessel wall and promotes the production of vasoconstrictive factors such as endothelin. Both male and female sex steroids have a regulating effect on the rennin-angiotensin system (RAS) and affect angiotensinogen production and sodium metabolism. The decline in estrogen levels around menopause causes an up regulation of the RAS with an increase in plasma- rennin activity[5].

Hypertension often clusters with other risk factors such as overweight, elevated insulin resistance, diabetes and lipid abnormalities. In the women's health study it was shown in almost 40,000 healthy women (>45 years) that an elevated blood pressure increases cardio vascular risk and that hypertension is a strong predictor for the development of type II diabetes. Even in premenopausal women, hypertension has been shown to be a potent risk factor for the presence of coronary artery disease[2].

Good results have been obtained by Acupressure treatment, particularly in mild moderate blood pressure. The systolic B.P. comes down rapidly initiating acupressure treatment, but the diastolic B.P. comes down gradually. However acupressure has enabled quite a patient to cut down the dosage of antihypertensive drug by 33 to 50%[14].

Acupressure plays an important role to be taken into consideration to postmenopausal women to minimize postmenopausal symptoms such as hypertension and to avoid harm effect of hormone replacement therapy through regulation of neuroendocrine system without patient complication or side effect[12].

Case studies and small trials suggest that acupressure may effectively treat hypertension, that acupressure is a mean of manipulating the same acupoints that are used in acupuncture, but without the needles. Instead of needles, acupressure involves the application of manual pressure (usually with the fingertips) along the meridians to unblock energy blockages and reintroduce the optimal flow of Ki to maintain physical and mental well being, treat disease or alleviate discomfort. Acupressure massage performed by a therapist can be very effective both as prevention and as a treatment for many health conditions including headaches, general aches, pain, cold, flu, arthritis, asthma, hypertension, menstrual cramps, sinus problems, sprains, tennis elbow and toothaches. Acupressure points can also be stimulated to increase energy, feelings of well-being and reduce stress[4].

SUBJECTS, MATERIAL AND METHODS

Sixty patients after menopause complained from hypertension (diagnosed by gynecologist/physician) were selected from the geriatric center for physical therapy and rehabilitation in Palestine Hospital Cairo shared in this study. Their blood pressure was ranged from 140/90 to 175/110 mmHg. All patients were after menopause for at least one year. The diagnosis of hypertension was done for each patient by gynecologist/ physician before the beginning of the study by sphygmomanometer instrument. They were

divided randomly into two groups equal in number (A&B). Group (A) received medications only; Group (B) received medications and acupressure sessions. The study was conducted from 17 January to 15 March 2011.

Acupressure program:

This program was for 6 weeks, every other day (18 sessions), for 30 minutes, moderate pressure gradually directed on three acupressure points with thumb at a 90 degree angle from the surface of skin, pressure for one minute and release for one minute, repeated for five times per each acupressure point each session.

The woman was sitting in a relaxed comfortable long sitting position with her back well supported. Moderate pressure was gradually directed on three acupressure points with thumb at a 90 degree angle from the surface of skin (Liver 3, Spleen 6 and Stomach 36).

The Student t-test was used to compare between pre and post treatment results.

RESULTS

A- Physical characteristics of the patients.

Control group: Their mean age (57.33±4.32) years, mean weight (77.1±12.73) Kg, and mean height (167.63±9.85) cm.

Study group: Their mean age (56.86±4.25) years, mean weight (78.26±13.53) kilograms (Kgs), and mean height (169.2±10.34) centimeters (cm).

There was no significant difference between both groups in their ages, weights, and heights where their P-values were (0.67, 0.73 and 0.55) respectively (Table 1).

Table (1): Physical characteristics of the patients in both groups (A&B).

Items	Group A		Group B		Comparison		S
	Mean	±SD	Mean	±SD	t-value	P-value	
Age (yrs)	57.33	±4.32	56.86	±4.25	0.42	0.67	NS
Weight (Kg)	77.1	±12.73	78.26	±13.53	0.34	0.73	NS
Height (cm)	167.63	±9.85	169.2	±10.34	0.6	0.55	NS

B- Systolic blood pressure:

Group (A): Table (2) demonstrated the systolic blood pressure pre and post treatment for group (A). There was a highly significant difference in the paired t-test between pre and post treatment systolic blood pressure as the mean value of pretreatment was (152.66± 10.06) and for post treatment was (139.16±11.52) where the t-value was (12.54) and P-value was (0.0001). The percentage of decrease was 8.84 %.

Group (B): Table (2) demonstrated the systolic blood pressure pre and post treatment for group (B). There was a highly significant difference in the paired t-test between pre and post treatment Systolic blood pressure as the mean value of pre treatment was (151.83±9.32) and for post treatment was (131.5±8.32) where the t-value was (15.0) and P-value was (0.0001). The percentage of decrease was 13.38 %.

Table (2): Systolic blood pressure pre and post treatment for both groups (A&B).

Systolic blood pressure	Group A (St group)		Group B (Study group)	
	Pre	Post treatment	Pre treatment	Post treatment
Mean	152.66	139.16	151.83	131.5
±SD	±10.06	±11.52	±9.32	±8.32
Mean difference	13.5		20.33	
Percentage of change	8.84 %		13.38 %	
DF	29		29	
t-value	12.54		15.0	
P-value	0.0001		0.0001	
S	HS		HS	

Between Groups: Table (3) revealed the independent t-test results for the systolic blood pressure pre and post treatment between groups A and B. There was no significant difference in pre treatment values where the t-value was (0.33) and p-value was (0.74). But there was a significant difference in the post treatment values (P<0.05) where the t-value was (2.95) and p-value was (0.005). (Fig.1).

Table (3): Independent t-test between groups A& B for systolic blood pressure pre and post treatment.

Independent t-test	Systolic blood pressure	
	Pre	Post
Mean difference	0.83	7.66
t-value	0.33	2.95
P-value	0.74	0.005
S	NS	HS

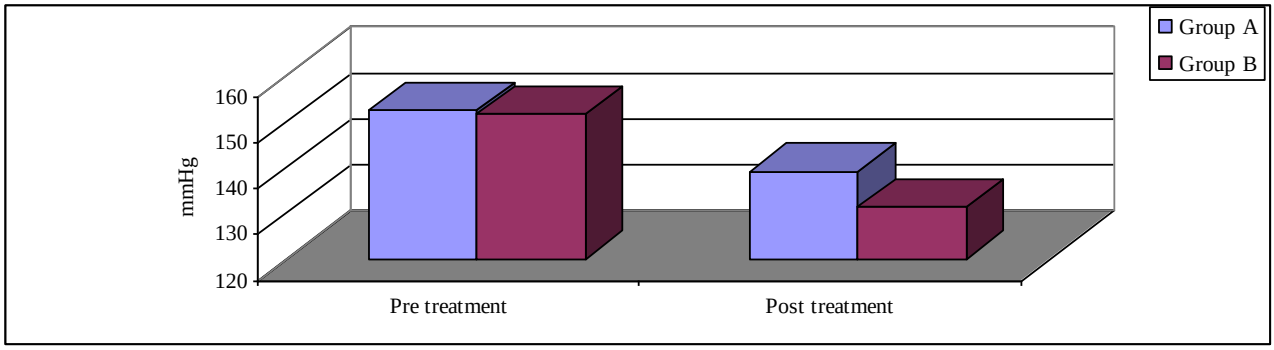

Fig. (1): Systolic blood pressure pre and post treatment of groups (A&B).

C- Diastolic blood pressure:

Group (A): Table (4) demonstrated the diastolic blood pressure pre and post treatment for group (A). There was a highly significant difference in the paired t-test between pre and post treatment Diastolic blood pressure as the mean value of pre treatment was (94.83± 4.25) and for post treatment was (87.33±5.37) where the t-value was (12.04) and P-value was (0.0001). The percentage of decrease was 7.9%.

Group (B): Table (4) demonstrated the diastolic blood pressure pre and post treatment for group (B). There was a highly significant difference in the paired t-test between pre and post treatment diastolic blood pressure as the mean value of pre treatment was (94.66± 4.53) and for post treatment was (83.16±4.25) where the t-value was (15.85) and P-value was (0.0001). The percentage of decrease was 12.14 %.

Table (4): Diastolic blood pressure pre and post treatment for both groups (A&B).

Diastolic blood pressure	Group A (St group)		Group B (Study group)	
	Pre	Post treatment	Pre treatment	Post treatment
Mean	94.83	87.33	94.66	83.16
±SD	±4.25	±5.37	±4.53	±4.25
Mean difference	7.5		11.5	
Percentage of change	7.9 %		12.14 %	
DF	29		29	
t-value	12.04		15.85	
P-value	0.0001		0.0001	
S	HS		HS	

Between Groups: Table (5) revealed the independent t-test results for the diastolic blood pressure pre and post treatment between groups A and B. There was no significant difference in pre treatment values where the t-value was (0.14) and p-value was (0.88). But there was a significant difference in the post

treatment values (P<0.05) where the t-value was (3.33) and p-value was (0.002). (Fig.2).

Table (5): Independent t-test between groups A& B for diastolic blood pressure pre and post treatment.

Independent t-test	Diastolic blood pressure	
	Pre	Post
Mean difference	0.16	4.16
t-value	0.14	3.33
P-value	0.88	0.002
S	NS	HS

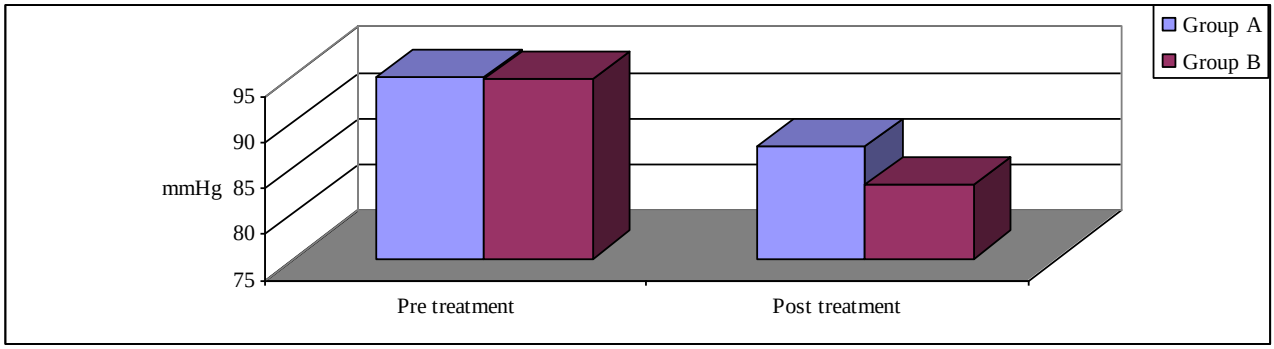

Fig. (2): Diastolic blood pressure pre and post treatment of groups (A&B).

DISCUSSION

Hypertension is one of the most prevalent and powerful contributors to atherosclerotic cardiovascular disease. Hypertension affects more men than women until 55 years of age, but after age 55, the percentage of women is higher. Estrogen deficiency has been linked to the rapid increase in cardiovascular disease in women who have undergone natural or surgical menopause. The cardio protective effects of estrogens are not completely understood but may involve direct effects on blood vessels through modulation of endogenous vasoconstrictors and vasodilators and through reductions in serum lipoprotein and cholesterol levels. Experimental evidence suggests that estrogen increases the biological actions of nitric oxide and decreases the actions of angiotensin. After menopause, loss of the vascular protective effects of estrogens may unmask a population of women particularly prone to hypertension who would be at higher risk for cardiovascular disease[11].

The results of this study found that, there was a statistically highly significant decrease (P<0.01) in blood pressure measurements after the performance of the acupressure sessions on postmenopausal women.

The results of this study agreed with those of Yu et al. (1991)[22] who found that the therapeutic effects in the 2 groups (acupressure and medication groups) were similar, while the rate of marked efficacy in the acupressure group was higher than that of the medication group, and the level of blood lipids also significantly dropped. Effect of acupressure on essential vascular hypertension was good. That was concluded by those authors in the study conducted in First Teaching Hospital, Harbin Medical University to determine effect of auriculoacupressure on treatment of essential hypertension.

The results also agreed with those of Lichstein et al. (2000)[10] who suggested that acupuncture and acupressure may be efficacious in decreasing arterial BP in hypertensive patients.

The results of the current study are also supported by those of Wei and John, (2006)[19], who has found that acupuncture and acupressure can modulate cardiovascular function, particularly BP reduction, and concludes that future treatment of hypertension can potentially include acupuncture as a nonpharmacological intervention.

Also the results of the study are supported by Yin et al. (2007)[21], who found that acupuncture seems to offer an additional benefit to the treatment of hypertensive

patients such as medication or lifestyle modification for hypertensive or pre-hypertensive subjects.

The results of this study also agreed with those of XU et al. (2007)[20], who found that the systolic BP of those in treatment group they received antihypertensive agents and acupressure) was significantly lower than that in control group (they received antihypertensive agents) after two to three weeks of therapy. The diastolic BP of those in treatment group reduced one week after the massage (acupressure or acupoint massage). That was concluded by those authors in the study conducted in Yantai Beihai Hospital to determine the effect of acupoint massage on blood pressure in patients with hypertensive.

The results of this study are supported by Flachskamp, (2007)[7], who found that acupuncture had some effect in mild to moderate hypertension.

Results of this study agreed with those of Sunay et al. (2011)[18], who found that Acupuncture was effective in reducing menopausal complaints and can be considered as an alternative therapy in the treatment of menopausal symptoms. That was concluded by those authors in the study conducted in Ankara Training and Research Hospital to investigate whether acupuncture has an effect on menopausal symptoms and to explore whether this effect is related to changes in hormone levels.

The results of this study disagreed with the results of Macklin, (2007)[12], who found that acupuncture are unlikely to achieve clinically meaningful reductions in systolic blood pressure or diastolic blood pressure for the average patient with mild-to-moderate hypertension.

Also the results of this study disagreed with the results of Lee et al. (2009)[9], who found that the notion that acupuncture may lower high BP is inconclusive.

Conclusion

On the basis of the data obtained in the present study, it is concluded that acupressure is very effective in reducing hypertension in postmenopausal women.

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الملخص العربي

تأثير الضغط الوخذى على ارتفاع ضغط الدم لدى السيدات بعد انقطاع الطمث

أجريت هذه الدراسة لمعرفة تأثير الضغط الوخذى على ارتفاع ضغط الدم لدى السيدات بعد انقطاع الطمث . وقد شارك في هذه الدراسة ستون مريضة مصابة بارتفاع ضغط الدم من مركز صحة المسنين للعلاج الطبيعى والتأهيل ب مستشفى فلسطين فى القاهرة تم تشخيصهن بواسطة طبيب نساء/ باطنى. تراوحت أعمارهن بين 50إلى 65سنة وضغط الدم تراوح بين 90/140 الى 110/175 ملليمتر زئبق و كن بعد انقطاع الطمث لمدة عام على الاقل . أجريت ه ذه الدراسة فى الفترة من 12 يناير الى 17 مارس 2009 . تم تقسيمهن الى مجموعتين متساويتين فى العدد: مجموعة (أ) تلقت العلاج الدوائى فقط ، بينما مجموعة (ب) تلقت الغلاج الدوائى والعلاج بجلسات الضغط الابرى . وقد تم قياس ضغط الدم بجهاز قياس ضغط الدم قبل وبعد إجراء برنامج لضغط الوخذى لمدة ٦ أسابيع . وأوضحت نتائج الدراسة وجود نقصان ذات دلالة إحصائية عالية في ضغط الدم بعد إجراء الضغط الوخذى فى المجموعة الثانية أكثر من المجموعة الأولى .
وهكذا يمكن أن نستخلص أن الضغط الوخذى ذات كفاءة عالية في تقليل ضغط الدم لدى السيدات بعد انقطاع الطمث.
الكلمات الدالة : الضغط الوخذى– سن ما بعد إنقطاع الطمث – جهاز الضغط – الضغط الإنقباضى – الضغط الإنبساطى.