

The efficacy of acupuncture in controlling climacteric symptoms in women after menopause

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ABSTRACT

Objective: To evaluate the effectiveness of acupuncture procedures in soothing climacteric symptoms in postmenopausal female patients with high Kupperman index.

Design: Prospective randomized controlled study.

Setting: Patients enrolled in the Specialistic Outpatient Clinics in Polish Mothers Memorial Hospital, Research Institute in Łódź, Poland.

Patient: Forty eight postmenopausal women aged 48–57 years with climacteric symptoms (Kupperman index > 20) and who are not on any hormone replacement therapy regimes.

Interventions: Twelve acupuncture procedures were performed with the frequency of three per week in every female patient.

Mains outcome Measure: Kupperman index including hot flushes, sweating, sleep disorders, nervousness, depression, vertigo, headaches, arthralgia, palpitation, weakness and formication.

Results: During the acupuncture therapy a significant reduction of all climacteric symptoms was observed, and the Kupperman index was decreased from 30.64 (± 4.70) points at the baseline to 11.29 (± 5.73) points after four weeks of therapy ($p < 0.0001$).

Conclusion : Acupuncture reduces effectively the intensity of climacteric syndrome in postmenopausal females and can be an alternative to the hormone replacement therapy.

Key words: climacteric symptoms, menopause, acupuncture.

INTRODUCTION

Climacterium is defined by the last menstrual period. Different hormonal alterations observed throughout this phase originate mainly from extinguishing ovarian function. The most important of them seems to be the deficiency of sex steroids – estrogens and progesterone and its accompanying symptoms: accelerated bone loss, atherosclerosis and genitourinary changes.

Some unfavourable metabolic changes including lipid profile, carbohydrate metabolism, coagulation and fibrinolytic parameters are derived also from low estrogen levels found in menopausal women. They create increased risks for ischaemic heart disease and venous thromboembolism which are very distinctive for the menopausal period^{2,3}.

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But the most common female complaints notified during this time are vasomotor and psychic disturbances revealing as hot flushes and sweating, sleep disorders, depression, vertigo and headaches, palpitations or arthralgia. Being estrogen-dependent and having composed climacteric syndrome, they make generally the first indication for commencing hormonal replacement therapy (HRT) in menopausal women^{4,5}.

As life expectancy increases worldwide, and particularly in developed countries, where life extends beyond the 8th decade, an increasing proportion of the female population is now postmenopausal. With the age of menopause being relatively fixed at approximately 51 years, more than a third of a woman's life is now spent after menopause. Here symptoms and signs of estrogen deficiency merge with issues encountered with natural aging. As the world population increases and a larger proportion of this population is made up of individuals over 50, medical care specifically directed at postmenopausal women becomes an important aspect of modern medicine. In the US, by the year 2020, it is estimated that there will be approximately 50 million postmenopausal women¹¹.

Age of menopause, which is a genetically programmed event, is subject to some variability. The age of menopause in western countries is between 51 and 52 years, is thought to be correlated with general health status¹². Socioeconomic status is associated with an earlier age of menopause. Higher parity on the other hand has been found to be associated with a later menopause¹³. Smoking has consistently been found to be associated with menopause with an onset 1–2 years earlier¹⁴. While body mass has been thought to be related to age of menopause (greater mass with later menopause) the data have not been consistent. Malnourishment and vegetarianism have both been found to be associated with earlier onset menopause. However, physical and athletic activity have not been found consistently to influence the age of menopause.

There also appear to be ethnic differences in the onset of menopause. In the US, compared to Caucasian white women, African-American and Latino women have been found to have an earlier menopause by approximately 2 years¹¹. Around the world, although parity may be increased, the age of menopause appears to be somewhat earlier than that reported for the US (ages 51–52).

While symptoms often herald the onset of menopause, many other processes in the body are affected as a consequence of the decline in estrogen status. Since virtually all tissues in the body express estrogen receptors they all are affected in some way without

this ligand. Bone, brain, the cardiovascular system, the gastrointestinal tract, collagen, skin and other body systems are significantly affected by declining estrogen. However, it is important to appreciate that these organs also are affected by aging. A more in depth discussion of how estrogen deficiency versus aging affects various organ systems may be found in a recent review¹⁵. Nevertheless since most of these changes (e.g. bone loss) are silent and the rate of changes cannot easily be predicted, the realization that changes do occur and may be prevented or attenuated is a conceptual goal to be achieved. Employment of preventative strategies are important for the health and longevity of all postmenopausal women. These issue will be discussed in greater depth in other chapters in this volume.

However not all women manifesting climacteric symptoms will avail themselves as HRT users. The reason for this could be varied; medical contraindications (for example – diagnosed vaginal bleeding, breast and endometrial cancers, active venous thromboemolism, serious hepatopathy) or even the lack of patient's consent for this kind of therapy (cancerophobia, bad tolerance of so-called starting symptoms of HRT). It is for this reason that another effective cure should be found for these women. We are of the opinion that this alternative method can become acupuncture. This study was therefore conducted to establish whether acupuncture therapy could be of value in the treatment of vasomotor symptoms and other manifestations characteristic of postmenopause.

METHODS

Forty eight postmenopausal women 48–57 years (mean 53.4±3.27) with climacteric symptoms (Kupperman index > 20) and who were not on any form of hormone replacement therapy (HRT) met the inclusion criteria for the study. We enrolled generally healthy females who did not give their consent for HRT use. Fear of putting on weight (41.7%), cancerophobia (35.4%) and bad HRT tolerance in the past (22.9%) were noted to be the three main reasons for the reluctance to hormonal therapy in these patients.

No clinically significant abnormalities in gynaecological examination, transvaginal ultrasonography, digital palpation of mammary glands followed by mammography as well as in some laboratory tests (white blood cell count, GOT, GPT, bilirubin, fasting serum glucose, cholesterol, triglycerides), performed before onset of HRT therapy noted in the study group. Baseline group characteristics are given table 1.

All women included in this study were regular patients

of the Specialistic Outpatient Clinics in Polish Mother's Memorial Hospital, Research Institute in Łódź, Poland.

Our therapy consisted of 12 acupuncture procedures performed with the frequency of three per week. Each procedure lasted about 20 minutes. Twelve needles in individual sets were used. The selection of acupuncture points was done according to the analysis of the contemporary literature and also based on our own experiences^{6,7}.

We have applied mostly corporal acupuncture points: K 3 (Taixi), P 6 (Neiguan), H 7 (Shenmen), Lu 9 (Taiyuan), St 36 (Zusanli), Sp 6 (Sanyinjiao), Cv 5 (Shimen), Gv 14 (Dazhui), Gv 20 (Baihui), UB 31 (Shangliao) and additionally one auricular point – Shenmen.

At the baseline and after three weeks of acupuncture therapy the Kupperman index, a point scale of climacteric symptoms intensity, for each woman was

estimated. The subsequent statistical analysis utilized t-Student test. For all the evaluated variables arithmetical averages as well as standard deviation were calculated.

RESULTS

After twelve acupuncture procedures we observed a statistically significant reduction in the intensity of all evaluated climacteric symptoms. After four weeks of acupuncture therapy, the Kupperman index decreased from 30.64 (± 4.70) to 11.29 (± 5.73) points, a mean drop of 19.35 (± 6.10) points ($p < 0.0001$). As indicated in Table 2, there was significant improvement in the various climacteric symptoms in our series of postmenopausal women. A significant reduction ($P < 0.0001$) occurred with respect to symptoms such as hot flushes, sweating, sleep disorders, nervousness, depression, vertigo, headaches and palpitation following four weeks of acupuncture therapy.

TABLE 1
Baseline group characteristics.

Age [years]	53.4 (± 3.27)
Time from LMP [years]	3.21 (± 2.78)
Weight [kg]	66.79 (± 10.03)
BMI [kg/m^2]	25.97 (± 3.66)
White blood count [$10^3/\text{ml}$]	5.464 (± 1.673)
Fasting glucose [mg/dl]	87.2 (± 12.6)
Cholesterol [mg/dl]	182.6 (± 28.8)
Triglycerides [mg/dl]	117.2 (± 57.2)
GOT [U/l]	18.7 (± 7.9)
GPT [U/l]	21.3 (± 8.3)
Bilirubin [mg/dl]	0.58 (± 0.23)
Kupperman index	30.64 (± 4.70)

LMP=last menstrual period

TABLE 2Intensity of climacteric symptoms in points of Kupperman scale (mean \pm SD)

No.	variable	To	T1	p-value
1.	Hot flushes	9.08 (\pm 2.70)	2.83 (\pm 2.97)	<0.0001
2.	Sweating	4.37 (\pm 1.34)	1.50 (\pm 1.33)	<0.0001
3.	Sleep disorder	4.12 (\pm 1.45)	1.54 (\pm 1.25)	<0.0001
4.	Nervosity	4.54 (\pm 1.47)	1.79 (\pm 1.32)	<0.0001
5.	Depression	1.52 (\pm 0.98)	0.69 (\pm 0.68)	<0.0001
6.	Vertigo	1.25 (\pm 1.06)	0.67 (\pm 0.80)	<0.001
7.	Headaches	1.19 (\pm 1.10)	0.35 (\pm 0.52)	<0.001
8.	Arthralgia	0.90 (\pm 0.95)	0.48 (\pm 0.68)	<0.0001
9.	Palpitation	1.17 (\pm 1.05)	0.46 (\pm 0.58)	<0.0001
10.	Weakness	1.27 (\pm 0.98)	0.38 (\pm 0.53)	<0.0001
11.	Formication	1.23 (\pm 0.99)	0.60 (\pm 0.67)	<0.0001
12.	Kupperman index (1 + 2 +... + 11)	30.64 (\pm4.70)	11.29 (\pm5.73)	<0.0001

T₀ – before therapy; T₁ – after four weeks

DISCUSSION

Menopausal period results in aberrations in the hormonal homeostasis in women. According to Traditional Chinese Medicine (TCM) the most common at this time are symptoms of Yang excess – sweating, accelerated pulse, increased body temperature, xeroderma and xerophthalmia or symptoms of Yin depletion – lack of concentration, low sexual desire, depression. Organs responsible for that condition are kidneys (“life gate”, the main regulator of Yin and Yang in human organism), but also spleen, pancreas and liver. The role of acupuncture in postmenopausal women is to redress the unstable balance, and establish it on a new level since the restoration of forgoing homeostatic equilibrium is practically unattainable. TMC theory explains that acupuncture in these cases improves the flow of Qi energy imitating fluid in communicating levels⁸.

The most often used are acupuncture points lying on meridians of kidneys, spleen, stomach, pericardium, heart, urinary, bladder, conception and the main vessels⁶.

Acupuncture in the treatment of climacteric syndrome is aimed at diminishing the various symptoms associated with this condition. The application of moxibustion in these cases is not recommended with the only exception being states of yin depletion⁸. It is

therefore important to include some important auricular points for ovaries, uterus, heart, kidneys, hypothalamus and endocrine glands during the acupuncture procedure⁹.

Acupuncture originating from TCM has long been applied to pain control and treating psychosomatic illness. This alternative medicine technique provides a specialized sensory stimulation that is transmitted through sensory neuronal pathways. In order to fully comprehend its specific roles an analysis of the neuroanatomy, neurophysiology and neuropharmacology is needed. This is primarily due to the fact that inserting one or more needles at particular points of the body activates neural pathways at three different levels provoking local, regional and general reactions¹⁶⁻¹⁸.

Chronic pain such as those involving the climacteric women could be influenced by endorphinergic function, perhaps by depletion of neurotransmitters of these endorphinergic neurons. β -Endorphins and ACTH are liberated from the pituitary gland by stimulation using acupuncture. Analgesia (and sedation) produced by natural or electrical stimulation of other cutaneous afferents and by the acupuncture techniques are believed to be mediated by these enkephalin containing interneurons within the substantial gelatinosa of the dorsal horn¹⁷. Because pain is in part, a negative emotional state, interventions that diminish the

neurophysiology and neuroendocrinology of emotional arousal by restoring balance are likely to produce pain relieving benefit.

Estrogens and progestins have been reported to have potent effects on central serotonergic and opioid neurons, modulating both neuronal activity and receptor density¹⁹, and acupuncture is believed to activate the serotonergic descending system within the dorsolateral funiculus and the noradrenergic system from locus coeruleus¹⁸⁻²⁰.

In our study we observed a significant reduction in the intensity of climacteric symptoms after four weeks of the acupuncture therapy. Hammer et al¹⁰ using this

acupuncture procedure obtained a substantial decrease in the number of hot flushes during 10 weeks of acupuncture therapy in men who underwent castration therapy for prostatic carcinoma¹⁰.

A routine acupuncture therapy of climacteric ailments comprises at least 10 procedures (2–3 per week). In some cases of highly intensified vasomotor symptoms the first five punctures can be done even in the outline of everyday procedures. Usually after 6-8 months a repetition of this therapeutic schema is needed⁷. In conclusion, the acupuncture technique is highly effective in controlling climacteric symptoms among postmenopausal women and can provide an alternative form treatment to hormone replacement therapy.

REFERENCES

- Derwich K, Pawelczyk L. Klimakterium. In: Pisarski T, editor. *Poloznictwo i ginekologia*. Warszawa: Wydawnictwo Lekarskie PZWL, 1998:761-82.
 - Dawson S, Henney A. The status of PAI-1 as a risk factor for arterial and thrombotic disease: a review. *Atherosclerosis* 1992; 95:105-17.
 - Dembinska-Kiec A. Gospodarka lipidowa po menopauzie. *Pol Arch Med Wewn* 1998; 100:211-9.
 - Pertynski T. Kobieta w wieku okolomenopauzalnym i pomenopauzalnym. *Med Dypł* 1997; 6 (1):13-9.
 - Pschyrembel W, Strauss G, Petrie E, editors. *Ginekologia praktycznie*. Warszawa: Wydawnictwo Lekarskie PZWL, 1994.
 - Garnuszewski Z, editor. *Akupunktura we wspolczesnej medycynie*. Warszawa: Amber, 1996.
 - Wozniak, P, Oszukowski, G, Stachowiak: *Akupunktura W codziennej praktyce lekarza ginekologa*. *Aku Pol* 1999; 15/16:507-27.
 - Stux G, Pomeranz B, editors. *Basis of Acupuncture*. Berlin: Springer Verlag, 1988.
 - Chen K et al. auriculoacupuncture therapy – a traditional Chinese method of treatment. *J Tradit Chin Med* 1992; 12 (4): 300-10.
 - Hammar M, Frisk J, Grimas O, Hook M, Spetz A, Wyon Y. Acupuncture treatment of vasomotor symptoms in men with prostatic carcinoma: a pilot study. *J Urol* 1999; 161 (3): 853-6.
 - Broomberger JT, Matthews KA, Kuller LH et al. Prospective study of the determinants of age at menopause. *Am J Epidemiol* 1997; 145:124-133.
 - Cooper GS, Sandler DP. Age at natural menopause and mortality. *Ann Epidemiol* 1998; 8:229-235.
 - Stamford L, Hartge P, Brinton LA et al. Factors influencing the age at natural menopause. *J Chr Dis* 1987; 40:995-1002.
 - Van Noord, PA, Dubas JS, Dorland M, Boersma H, teVelde E. Age at natural menopause in a population-based screening cohort; the role of menarche, fecundity and lifestyle factors. *Fertile Steril* 1997; 68:95-102.
 - Bradsher Jen, McKinlay SM. Distinguishing the effects of age from those of menopause. Chapter 13. In: Lobo RA, Kelsey J, Marcus R (eds). *Menopause: Biology and Pathology*, New York: Academic Press, 2000.
 - Davis GC. Endorphins and pain. *Psychiatr Clin North Am* 1983; 6:473-487.
 - Takashige C, Nakamura A, Asamoto S, Arai T. Positive feedback action of pituitary endorphin in acupuncture analgesia afferent pathways. *Brain Res Bull* 1992; 29:37-44.
 - Zhu D, Ma Q, Li C, Wang I. Effect of stimulation of Shensu point on the aging process of genital system in aged female rats and the role of monoamine neurotransmitters. *J Tradit Chin Med* 2000; 20:59-62.
 - Rapkin AJ, Morgan M, Goldman I, Brann DW, Simone B, Mahesh VB. Progesterone metabolite allopregnenolone in women with premenstrual syndrome. *Obstet Gynecol* 1997; 90:709-714.
 - Takagi J, Yonehara N. Serotonin receptor subtypes involved in modulation of electrical acupuncture. *Jpn J Pharmacol* 1998; 78:511-514.
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