

Effect of Laser Acupoints on Postmenopausal Hot Flashes

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Abstract: *Aims: To investigate the effect of LASER acupoints on post menopausal women with hot flashes. Study design: A clinical controlled trial. Place and Duration of study: Department of Gynecology, Kafrelsheikh General Hospital- Kafrelsheikh governorate, Egypt, between January 2014 and Mars 2014. Methodology: Thirty postmenopausal women (age range 45-50 years) were selected randomly, clinically diagnosed with postmenopausal hot flashes and divided into 2 equal groups (A&B). Women in group (A) were treated by LASER acupoints, women in group B were treated by placebo LASER acupoints. Hot flashes frequency/24 hours, intensity and level of FSH were measured before and after the treatment program. Results: Women in group (A) showed statistical significant changes in postmenopausal hot flashes frequency/24 hours, intensity and level of FSH ($P=0.001$, $.01$ and $.01$ respectively) after the treatment program. Women in group (B) showed non significant changes in postmenopausal hot flashes frequency/24 hours, intensity and level of FSH ($P=.85$, $.9$ and $.79$ respectively) after the treatment program. There were statistical significant changes in postmenopausal hot flashes frequency/24 hours, intensity and level of FSH ($P=0.001$, $.01$ and $.01$ respectively) after the treatment program between both groups (A&B). Conclusion: It could be concluded that Laser acupoints can be used as conservative and effective methods in relieving menopausal hot flashes.*

Keywords: Menopause; LASER; Acupoints; Hot flashes; Serum FSH.

1. Introduction

Menopause is a natural biological process, not a medical illness that defined as permanent end of menstruation and fertility that occur 12 months after last menstrual period. It caused by natural decline of reproductive hormones, that ovaries start making less estrogen and progesterone [1]. Vasomotor episodes with hot flashes and night sweating are the most prevalent complaints related to menopause. A hot flash is described as a feeling of intense heat in the face, neck and chest. It lasts on average four minutes, with a range from a few seconds up to 10 minutes or more [1]. Hot flashes occur in the vast majority of post-menopausal women [2]. An extensive questionnaire study of 506 women found that 87% had daily hot flashes [3]. Hot flashes are episodic and usually accompanied by nausea, dizziness, headache, palpitations, diaphoresis or night sweats. Having hot flashes may decrease a woman's quality of life by decreasing the quality of sleep and aggravating fatigue and depression [4]. Menopausal hot flashes make most of women seek medical care during the menopausal transition [5]. Hormone therapy with oestrogen is the most effective treatment for vasomotor dysfunction in most women, and will reduce hot flash frequency with about 75%-80%, compared with placebo. In women with intact uterus, oestrogen is combined with progestogen to avoid the development of endometrial hyperplasia and endometrial cancer [6]. Although HRT historically has been used as the standard treatment for hot flashes many women choose not to initiate or adhere to HRT because of its potential health risks and side effects [7]. Vasomotor, somatic, and psychological symptoms associated with menopause are often treated with hormone replacement therapy (HRT), but the role of non pharmacological interventions has received little attention [8]. As hot flashes are the most common problem for post menopausal women and the potential health risks of HRT, it is important to find out an effective, safe and non-pharmacological treatments to relieve their menopausal hot

flashes. This study was designed to investigate the effect of laser acupoints in relieving postmenopausal hot flashes.

2. Materials and Methods

A total of 30 women diagnosed as having postmenopausal hot flashes, were selected randomly from department of gynecology from kafrelsheikh general Hospital in kafrelsheikh governorate, Egypt, divided into 2 equal groups (A&B). Patients in group (A) were treated by LASER acupoints; patients in group (B) were treated by placebo LASER acupoints. Their age was ranged from 45 to 50 years. Their body mass index was less 30 kg/m^2 . The menstruation stopped since at least 12 months ago. All women had suffered from menopausal hot flashes for the last three months. The level of thyroid-stimulating hormone (TSH) was normal and the serum FSH concentration was $>50 \text{ mIU/ml}$. Patients were excluded who exhibited any medical treatment that affect the cardiovascular system during the previous 6 months or during the research period, had metabolic, renal or endocrine disease, or suffered from primary hypertension or hypotension, chronic anemia, tuberculosis or any mental disorder. The design of this study was a clinical controlled trial. Informed consent form had been signed from each patient before participating in the study. The study was done from January 2014 to Mars 2014. We measured the frequency and intensity of hot flashes by Registration forms for hot flashes [9], which filled by the same therapist, the participants recorded the numbers of hot flashes in a daily diary. They scored the mean daily hot flash intensity on a visual analogue scale of zero to 10, where zero represents no bother at all and 10 represents the worst possible intensity of hot flashes. The diaries were administered for one week during the qualifying period, and for one week at 6th week of the intervention period. Serum level of FSH was measured for all patients before and after the treatment programme. The treatment program in group (A) consisted of application

of laser acupoints (Sanyinjiao (sp6), Hegu (LI.4), Quchi (LI.11), Fengchi (GB.20.), Guanyuan (CV 4.) and Fuliu (KI7)) of both sides for 6 weeks, three sessions /week, Infrared laser diode will be applied 90 Sec. / each point, with wave length 904 nm and power output 5 mill watts. The head of the machine must be perpendicular, with direct contact to each point. While the treatment program in group (B) consisted of placebo laser acupoints. The collected data was statistically analyzed by using Mann-Witney, Wilcoxon matched pairs test and descriptive statistics: mean, standard deviation and percentage. Statistical significance level of 0.05 would be used within this study.

3. Results

All data had been collected and statistically analyzed and presented under the following headings;

3.1 Physical characteristics of the patients:

In this study, 30 women with postmenopausal hot flashes were divided randomly into two equal groups (A&B). Group (A): 15 women were included in this group; the mean age and BMI were (49.33±2.69) years and (26.78±1.49) Kg/m². Group (B): 15 women were included in this group; the mean age and BMI were (49.6±3.01) years and (26.73±1.45) Kg/m². There was no significant difference (P= .8 and .93) between both groups (A&B) regarding their ages and BMI respectively.

3.2 Hot flashes frequency/24 hours:

Group (A): There were a highly statistical significant differences in women's postmenopausal hot flashes frequency/24 hours (P=.0001) between mean values of women's postmenopausal hot flashes frequency/24 hours before (10.4±2.1) and after (5.8±2.06) the treatment program with percentage of improvement was 44.2%. Group (B): There were no significant differences in women's postmenopausal hot flashes frequency/24 hours (P=.85) between mean values of women's postmenopausal hot flashes frequency/24 hours before (10.6±2.58) and after (10.66±2.16) the treatment program. When comparing between the mean values of women's postmenopausal hot flashes frequency/24 hours between both groups (A&B), there was no significant difference (P=.8) at the beginning of the study. While there was a highly statistical significant difference (P= .0001) at the end of the treatment program (Table 1&Figure 1).

Table 1: Mean± SD values of women's postmenopausal hot flashes frequency/24 hours at pre and post treatment program for both groups (A&B)

	Women's postmenopausal hot flashes frequency/24 hours			
	Pre treatment		Post treatment	
	Group A	Group B	Group A	Group B
Mean ± SD	10.4±2.1	10.6±2.58	5.8±2.06	10.66±2.16
P-value	0.8		0.001	
Significance	NS		HS	

SD: standard deviation, P: probability, HS: highly significant, NS: non-significant

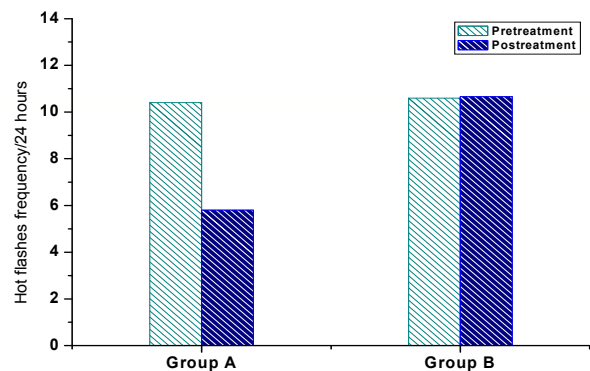


Figure 1: Mean values of women's postmenopausal hot flashes frequency/24 hours at pre and post treatment program for both groups (A&B)

3.3 Hot Flashes Intensity

Group (A): There were a statistical significant differences in women's postmenopausal hot flashes intensity (P=.01) between mean values of women's postmenopausal hot flashes intensity before (6.9±1.1) and after (4.8±1.06) the treatment program with percentage of improvement was 30.4%. Group (B): There were no significant differences in women's postmenopausal hot flashes intensity (P=.9) between mean values of women's postmenopausal hot flashes intensity before (7 ±1.58) and after (7.06±1.16) the treatment program. When comparing between the mean values of women's postmenopausal hot flashes intensity between both groups (A&B), there was no significant difference (P=.87) at the beginning of the study. While there was a statistical significant difference (P= .01) at the end of the treatment program (Table 2&Figure 2).

Table 2: Mean± SD values of women's postmenopausal hot flashes intensity at pre and post treatment program for both groups (A&B)

	Women's postmenopausal hot flashes intensity			
	Pre treatment		Post treatment	
	Group A	Group B	Group A	Group B
Mean ± SD	6.9±1.1	7±1.58	4.8±1.06	7.06±1.16
P-value	0.87		0.01	
Significance	NS		S	

SD: standard deviation, P: probability, S: significant, NS: non-significant

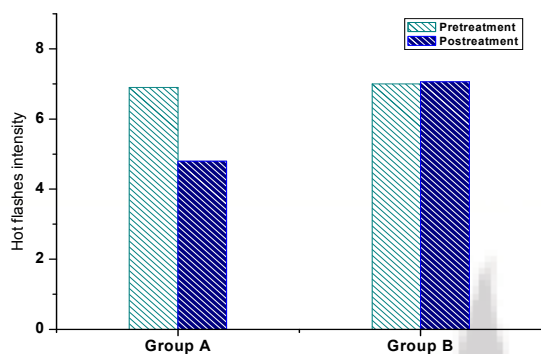


Figure 2: Mean values of women’s postmenopausal hot flashes intensity at pre and post treatment program for both groups (A&B)

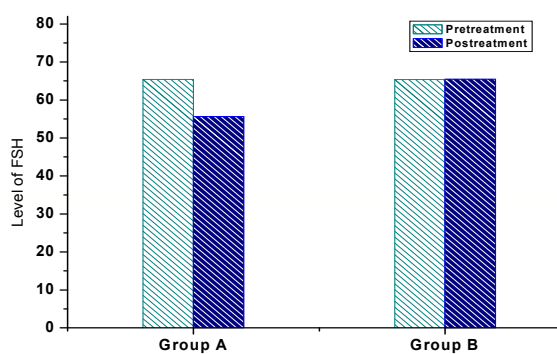


Figure 3: Mean values of women’s postmenopausal level of FSH at pre and post treatment program for both groups (A&B)

3.4 Level of FSH

Group (A): There were a statistical significant differences in women s postmenopausal Level of FSH (P=.01) between mean values of women s postmenopausal Level of FSH before (65.4±12.31) and after (55.61±10.06) the treatment program with percentage of improvement was 14.97%. Group (B): There were no significant differences in women s postmenopausal Level of FSH (P=.79) between mean values of women s postmenopausal Level of FSH before (65.33 ±12.58) and after (65.45±12.16) the treatment program. When comparing between the mean values of women s postmenopausal Level of FSH between both groups (A&B), there was no significant difference (P=.89) at the beginning of the study. While there was a statistical significant difference (P= .01) at the end of the treatment program (Table 3&Figure 3).

Table 3: Mean± SD values of women’s postmenopausal level of FSH at pre and post treatment program for both groups (A&B)

	Women’s postmenopausal level of FSH	
	Pre treatment	Post treatment
	Group A	Group B
Mean ± SD	65.4±12.31	55.61±10.06
	65.33±12.58	65.45±12.16
P-value	0.89	0.01
Significance	NS	S

SD: standard deviation, P: probability, S: significant, NS: non-significant

4. Discussion

An earlier study showed that the transition from reproductive to non-reproductive years in women is characterized by increased reporting of psychological, somatic, vasomotor and urogenital symptoms [10]. Menopause is the physiologic cessation of ovarian function and menstrual flows that occurs with advancing age in all women. Menopausal symptoms are the time when the body reacts to dropping levels of estrogen and 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 [4]. This study found that LASER acupoints may assist in the alleviation of postmenopausal hot flashes frequency and intensity. Stimulation of acupoints is associated with homeostatic regulation, and possesses effects such as buffering hormonal disturbance, modulating ovulation [11]. Increase blood concentrations of E2 in the ovariectomized rats, while reducing the elevated plasma LH; in addition, acupuncture also restored the number of gonadotropin-releasing hormone (GnRH) neurons in the ovariectomized rats [12]. Acupuncture was found to improve the reproductive disorders through modulating the blood E2 levels and improve the function of the hypothalamic-pituitary-ovarian axis, increase blood androgenous androgen level and facilitate its transformation into estrogen by aromatic enzyme in the brain, liver and fat tissues [13]. The result of this study agrees with those Jue Zhou et al [14], who found that acupuncture and auricular acupressure significantly relieve the severity and frequency of menopausal hot flashes. The levels of FSH decreased significantly and the level of E2 increased significantly. The increased levels of FSH and the lowered level of E2 are mainly associated with hot flashes during the menopausal transition. Another study by Komesaroff et al [15], they did not recommend laser acupuncture for relief of menopause symptoms. In this direct comparison of laser-on versus laser-off acupuncture, laser-on treatments were ineffective in altering menopausal symptoms, Over 3 months; the women documented their menopause symptoms. During this time, 23 had laser-on and 17 had laser-off (sham) acupuncture to 10 specific body points every 14 days. On average, the laser-on and laser-off groups, respectively, reported about 37 and 33 percent fewer daytime and about 30 and 39 percent fewer nighttime hot flashes. The researchers suggest further studies

of laser acupuncture in menopausal women focus on alternative acupuncture points. A major limitation of our study was the small size of the group, the psycho-physiological, social and culture level of each woman.

5. Conclusion

It could be concluded that laser acupoints are effective and can be used as an alternative treatment to decrease the frequency and severity of postmenopausal hot flashes.

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References

- [1] Nelson, H.D. (2008), "Menopause". *Lancet*, 371(9614), 760-770.
- [2] Freedman, R.R. (2001), "Physiology of hot flashes". *Am.J.Hum.Biol.* 13(4), 453-64.
- [3] Kronenberg, F. (1990), "Hot flashes: epidemiology and physiology". *Ann.N.Y.Acad.Sci.* 592, 52-86.
- [4] Juang, K.D., Wang, S.J., Lu, S.R., Lee, S.J. and Fuh, J.L. (2005), "Hot flashes are associated with psychological symptoms of anxiety and depression in peri and post- but not pre-menopausal women". *Maturitas*, 52, 119-26.
- [5] Visvanathan, K., Gallicchio, L., Schilling, C., Babus, J.K., Lewis, L.M., Miller, S.R. and et al. (2005), "Cytochrome gene polymorphisms, serum estrogens, and hot flushes in midlife women". *Obstet Gynecol.*, 106, 1372-81.
- [6] MacLennan, A.H., Broadbent, J.L., Lester, S. and Moore, V. (2004), "Oral oestrogen and combined oestrogen/progestogen therapy versus placebo for hot flushes". *Cochrane Database Syst. Rev.*, (4), CD002978.
- [7] Connelly, M.T., Richardson, M. and Platt, R. (2000), "Prevalence and duration of postmenopausal hormone replacement therapy use in a managed care organization". *J Gen Intern Med*, 15, 542-50.
- [8] Dale, J., Sorour, E. and Milner, G. (2008), "Do psychiatrists perform appropriate physical investigations for their patients? A review of current practices in a general psychiatric inpatient and outpatient setting". *J of Mental Health*. 17(3), 293-98.
- [9] Borud, E.K., Alraek, T., White, A., Fonnebo, V., Eggen, A.E., Hammar, M. and et al. (2009), "The Acupuncture on Hot Flushes among Menopausal Women (ACUFLASH) study, a randomized controlled trial". *Menopause*, 16(3), 484-93.
- [10] Innes, K. (2010), "Mind body therapies for menopausal symptoms: systematic review". *Maturitas*, 66, 135.
- [11] Stener-Victorin, E., Waldenström, U., Tagnfors, U., Lundberg, T., Lindsted, T.G. and Janson, P.O. (2000), "Effects of electro-acupuncture on an ovulation in women with polycystic ovary syndrome". *Acta Obstet Gynecol Scand*, 79, 180-8.

- [12] Zhao, H., Tian, Z.Z. and Chen, B.Y. (2003), "An important role of corticotrophin-releasing hormone in electro acupuncture normalizing the subnormal function of hypothalamus-pituitary-ovary axis in ovariectomized rats". *Neurosci Lett.*, 349, 25-28.
- [13] Yao, X., Wang, X.Q., Ma, S.L. and Chen, B.Y. (2007) "Electro acupuncture stimulates the expression of prolactin-releasing peptide (PrRP) in the medulla oblongata of ovariectomized rats". *Neurosci Lett.*, 411, 243-8.
- [14] Jue Zhou, Fan Qu, Xisheng sang, Xiatong Wang and Rui Nan. (2008), "Acupuncture and auricular acupressure in relieving Menopausal Hot Flashes of Bilaterally Ovariectomized Chinese Women.
- [15] Komesaroff, P.A., O'Brien, K.A., Varigos, E. and Black, C. (2010), "Laser acupuncture does not improve menopausal symptoms". *Menopause*, 17, 636-41.

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