RESEARCH
O&G Forum 2024; 34 – 3s: 105-108

ROLE OF DEHYDROEPIANDROSTERONE HORMONE IN RELIEVING OF VASOMOTOR SYMPTOMS IN POST AND PERI MENOPAUSE WOMEN

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Abstract
Background: A numebr of medications and vitamins have been evaluate for the management of vasomotor symptoms in association with menopause, such as dehydroepiandrosterone (DHEA), black cohosh, vitamin E, evening primrose oil and phytoestrogens (19). Despite, the long list of agents used to treat these symptoms, none of the treatment was proved to be effective in all treated women. Little is known about the efficacy and safety of using DHEA in treating these symptoms in Iraqi women.
The study aim: Goal of this projectis to figure out the associated efficacy and safety of DHEA in management of vasomotor complains in a sample of Iraqi females in the peri- and post-menopausal period.
Patients and methods: This trial was a single center randomized controlled clinical trial designed as single blinded and parallel groups with an allocation ratio of 1:1 (DHEA group: placebo group). Women in the intervention group (DHEA group) were given DHEA in a dose of 50 mg orally for 4 months; whereas, women in the placebo group were given placebo tablets for 4 months. The Patients enrolled were from various regions of Adiwaniyah Province, Iraq visiting Adiwaniyah Pediatric and Maternity Teaching Hospital during the period from January 2022 through January 2023.
Results: In post and peri-menopausal females, and in all enrolled women, we reported no difference that is statically matter in mean frequencies of host flushes and night sweat in the placebo groups; however, there was significant reduction in mean frequencies of host flushes and night sweat after treatment in the interventional groups with baseline state ($p< 0.001$).
Conclusion: dehydroepiandrosterone appears to be safe and efficient in reducing and reliving vasomotor symptoms in peri-menopausal and post-menopausal Iraqi women.
Key words: dehydroepiandrosterone, menopause, vasomotor symptoms, Iraq

INTRODUCTION

The menopausal transition is characterized by vasomotor symptoms, such as flashes that are hot and sweats at night that may considerably reduce life quality [1, 2]. The majority of women evaluate their vasomotor symptoms as moderate-to-severe throughout menopause, which can affect up to 80% of women [3, 4]. Frequent vasomotor symptoms have a duration median of 7.4 years that is greater than believed previously, according to the "Study of Women's Health Across the Nation" [5]. Typical period of these complains is 5 to 7 years, but up to 15% of women may experience them for decades or even their entire lives [6-8].

Of the most common issues relating menopause is vasomotor complains for which females search for medical attention is [9–1)]. Vasomotor symptoms are independently linked to numerous markers of increased cardiovascular risk, increased bone turnover, and more bone loss [12–14]. Although the exact origin of hot flashes is unknown, it is likely complex. In perimenopausal women, a shortening of the thermoneutral zone is usually believed to be the cause of hot flashes [15, 16].Given that the start of vasomotor symptoms coincides with alterations in hormones of reproduction at the transition related to menopause and the beneficial effects of estrogen that are exogenous, hormones of reproduction contribute significantly in that narrowing. Not all females who suffer hormonal alterations report experiencing vasomotor symptoms, despite the fact that lower amounts of estrogen and greater amounts of "follicle stimulating hormone" are related to this reporting [1]. Follicle-stimulating hormone has been found to have a stronger correlation with vasomotor symptoms than estradiol [17, 18].Additionally, it was discovered that neither amounts of hormones nor hemorrhage alterations completely described the frequent occurrence of vasomotor symptoms, pointing to the significance of additional variables such lifestyle and psychological features [1].

There are numerous nonpharmacologic remedies for vasomotor complaints. Among these include hypnotherapy, acupuncture, and modifications lifestyle habits. Numerous herbal remedies

and supplements of vitamins, such as, evening primrose oil, phytoestrogens, black cohosh, as well as DHEA have been investigated for the management of vasomotor complains associated to menopause [19]. Despite, the long list of agents used to treat these symptoms, none of the treatment was proved to be effective in all treated women. Little is known about the efficacy and safety of using DHEA in treating these symptoms in Iraqi women; therefore, the goal of this study was to figure out the associated efficacy and safety and of DHEA in management of vasomotor complains in a sample of Iraqi females in the peri- and post-menopausal period.

Patients and methods

This trial was a single center randomized controlled clinical trial designed as single blinded and parallel groups with an allocation ratio of 1:1 (DHEA group: placebo group). Women in the intervention group (DHEA group) were given DHEA in a dose of 50 mg orally for 4 months; whereas, women in the placebo group were given placebo tablets for 4 months. The Patients enrolled were from various regions of Adiwaniyah Province, Iraq visiting Adiwaniyah Pediatric and Maternity Teaching Hospital during the period from January 2022 through January 2023. Participants were peri-menopausal and post-menopausal women complaining of frequent host flushes and night sweat as part of vasomotor complainsrelated to this period of age. Women in the interventional group were 20 in number and females in the placebo category were also 20 in number. The outcome measures included the changes in mean frequency of host flushes and mean frequency of night sweats.

The trial was registered by the committee of ethical consideration in the college of medicine /University of Al-Qadisiyha which issued the ethical approval. All participants were asked to fill a written consent and women who refused to participate were excluded from the study.

Statistical work was established using the software program "statistical package for social sciences" (SPSS) (version 16.0, USA, IBM, Chicago). Numeric variables were shown in the form of range, standard deviation and average. Qualitative variables were shown in the form of percentage and count. The independent samples *t*-test is considered to contrast average between interventional group and placebo group. The paired *t*-test was used to compare mean before and after treatment. Chi-square test was used to compare counts of post and peri-menopausal females between groups of project. The level of significance was considered when the p-value equals or less than 0.05.

Results

Comparison of baseline characteristics between interventional group and placebo group is presented in table number one. The average age of both groups showed no significant variation, 48.95 ±1.28 years and 48.75 ±1.29 years, respectively (p = 0.625). Before starting treatment, we reported no difference that is statically matter in mean frequency of flushes per day between study groups, 5.10 ±0.97 versus 5.45 ±1.19, respectively (p = 0.314). In addition, we reported no difference that is statically matter in frequencies of post and peri-menopausal females between study groups, 15 (75.0 %) and 5 (25.0 %) versus 13 (65.0 %) and 7 (35.0 %), respectively (p = 0.490).

Comparison of mean frequencies of host flushes and night sweat before and after treatment is shown in table 2. In post and peri-menopausal females and in all enrolled women, we reported no difference that is statically matter frequencies of host flushes and night sweat in the placebo groups; however, there was significant reduction in mean frequencies of host flushes and night sweat after treatment in the interventional groups with baseline state (p< 0.001).

Table 1: Contrastingcharacteristics that are baseline between interventional group and placebo group

Characteristic	Placebo group *N* = 20	Intervention group *N* = 20	*P*
Age (years)			
Mean ±SD	48.95 ±1.28	48.75 ±1.29	0.625 I NS
Range	46 -51	46 -51	
Hot flush and sweating before treatment			
Mean ±SD	5.10 ±0.97	5.45 ±1.19	0.314 I NS
Range	4 -7	4 -8	
Menstrual state			
Peri-menopausal	15 (75.0 %)	13 (65.0 %)	0.490 C NS
Post-menopausal	5 (25.0 %)	7 (35.0 %)	

N: number of cases; **I**: independent samples test; **SD**: standard deviation; **NS**: not significant; **C**: chi-square test

Table 2: Comparison of mean frequencies of host flushes and night sweat before and after treatment

Group		Before treatment	After treatment	*P*
Peri-menopausal	**Placebo *N* = 15**			
	Mean ±SD	5.07 ±0.96	5.07 ±1.10	1.000 Pa NS
	Intervention *N* = 13			
	Mean ±SD	5.38 ±1.12	0.62 ±0.77	<0.001 Pa ***
	P	0.462 I NS	< 0.001 I ***	
Post-menopausal	**Placebo *N* = 5**			
	Mean ±SD	5.20 ±1.10	5.20 ±0.84	1.000 Pa NS
	Intervention *N* = 7			
	Mean ±SD	5.57 ±1.40	0.71 ±0.36	<0.001 Pa ***
	P	0.632 I NS	< 0.001 I ***	
Total	**Placebo *N* = 20**			
	Mean ±SD	5.10 ±0.97	5.10 ±1.02	1.000 Pa NS
	Intervention *N* = 20			
	Mean ±SD	5.45±1.19	0.65 ±0.33	<0.001 Pa ***
	P	0.314 I NS	<0.001 I ***	

N: number of cases; **NS**: not significant; **SD**: standard deviation; **Pa**: paired *t*-test; **I**: independent samples test; ***: significant at $p \leq 0.001$

Discussion

Women around menopause frequently experience symptoms of vasomotor origin basically in the form of hot flushes and night sweat several times daily and these symptoms are severe enough in great proportion of them to make poor the quality of life. Therefore, attempts are made in order to find the best method to manage these symptoms in terms of safety and efficacy aiming at improving women quality of life.

In this study, we evaluated the use of DHEA in a randomized clinical trial in order to see its efficacy and safety with this regard because of the poverty of Iraqi literatures dealing with this issue. We found that, in comparison with placebo, DHEA is effective and safe in removing these symptoms and we expect that this improvement will be reflected by great improvement in quality of life. Testosterone and dehydroepiandrosterone sulfate (DHEAS) levels decrease as women get older [20]. Compared to testosterone, DHEAS shows a more pronounced decline [21]. Postmenopausal symptoms, deterioration in sexual act, and a decrease in mineral density of bone have all been connected to the dip in these hormone levels. A review article has stated that significant decline of DHEAS occurs in post-menopausal women leading to a number of health consequences [22].

Of the molecular precursors in the manufacture of hormones that are steroid is dehydroepiandrosterone (DHEA). DHEA was suggested as a medication of replacement that has clinically advantageous benefits mediated by either hormone since it exerts its action viachanges to estrogen and/or androgen [23]. Its conversion to T is expected to have the androgenic effects of increasing libido and improving wellbeing, whilst its conversion to estrogen is thought to have the estrogenic benefits of improving menopausal vasomotor symptoms [21].

Several randomized controlled trials have looked at the safety characteristics of DHEA and its effects on menopausal complains, sexual act, and health of bone. DHEA appeared to have a good effect in some of these trials but not in others [21].

Conclusion

Dehydroepiandrosterone appears to be safe and efficient in reducing and reliving vasomotor complains in post and peri-menopausal Iraqi females

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