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Phytoestrogens Impact on Menopausal Symptomatology

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ABSTRACT

Introduction: The balance of endocrine and autocrine activity usually starts to fade after age of 45 years in women. This is particularly true for the imbalance of estrogen and progesterone. This imbalance creates a number of clinical syndromes and disorders. **Goal:** The goal of the study is to determine the effects of phytoestrogens on the psychological, somatic-vegetative and urogenital symptoms of menopause. **Material and methods:** The study included 275 respondents who are more than three in menopause. Respondents were taking commercially available phytoestrogens, in duration of 12 months. **Results and Discussion:** Review of clinical and epidemiological studies showing different results regarding effects of phytoestrogens on menopausal symptoms. In our study there was a significant reduction of somatic-vegetative and psychological symptoms under the influence of phytoestrogens, while urogenital symptomatology was not significantly changed. We recommend the use of phytoestrogens in early postmenopausal women with moderate symptoms.

Key words: menopausal symptoms, phytoestrogens.

1. INTRODUCTION

The balance of endocrine and autocrine activity usually starts to fade after 45 years of women's lives. This is particularly true for the imbalance of estrogen and progesterone. This imbalance creates an array of syndromes, and clinical disorders (1). To such hormonal changes are most sensitive those tissue that in the reproductive age are developing the highest dependence on steroid hormones. These are the brain, endometrium, bones and skin. Effects of hormonal changes after the last menstrual period are numerous and permanently progressive. Rapid responses of the brain to decrease steroid hormones are like dominoes that are falling down in low quality life (2).

2. RESEARCH HYPOTHESIS

Null hypothesis: Phytoestrogens have no effect on the menopause symptoms Alternative hypothesis: Phytoestrogens have an effect on the menopause symptoms

3. RESEARCH GOAL

Determine the effect of phytoestrogens on the psychological, somatic-vegetative and urogenital symptoms of menopause.

4. FORM OF THE STUDY, SUBJECTS AND METHODS OF RESEARCH

By a prospective study we conducted a research on the territory of the Municipality Velika Kladusa in period from June 1st 2010 to March 1st 2012.

The study included 275 respondents who are more than three years in menopause. Respondents were taking commercially available phytoestrogens, in duration of 12 months.

From the instruments we used in the study the Menopause Rating Scale–MRS. Patients answered MRS questionnaire at the beginning and end of the phytoestrogens treatment.

From the statistical models we used analysis of variance, correlation and factor analysis. Data were analyzed and processed by the software system SPSS for Windows (*Statistics 20*).

5. RESULTS

In total, 192 patients entered the study. The average age of the patients was 56.74±4.69 years and average menopause duration was 6.85±5.59 years.

Factor analysis of the data we have analyzed the MRS scale.

At the Table 1 the first factor explains somatic-vegetative, second psychological and third urogenital symptoms. Columns display factors saturation.

Complaints	Component		
	1	2	3
Hot flushes	.879	.013	-.159
Heart problems	.855	-.034	.013
Sleeping	.770	.046	-.215
Joints	.660	-.061	.224
Depression	-.134	.878	.231
Irritability	-.165	.818	.314
Anxiety	.016	.798	.216
Exhaustion	.335	.527	-.026
Sexual problems	-.032	.220	.895
Bladder	.080	.150	.887
Vaginal dryness	-.176	.251	.831
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 5 iterations.			

Table 1. Matrix of rotated components, the initial measurement (MRS)

Complaints	Component		
	1	2	3
Hot flushes	.896	-.133	.253
Heart problems	.894	-.122	.235
Sleeping	.854	-.027	.194
Joints	.751	.190	.066
Depression	-.038	.901	-.103
Irritability	-.022	.849	-.120
Anxiety	-.024	.813	-.054
Exhaustion	.060	.555	.402
Sexual problems	.172	-.041	.892
Bladder	.247	.103	.868
Vaginal dryness	.266	-.292	.821
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 4 iterations.			

Table 2. Matrix of rotated components, final measurement (MRS)

Table 2 shows the rotated factor matrix (I factor: somatic-vegetative, II factor: the psychological and III factor: urogenital). The columns show the factors saturation.

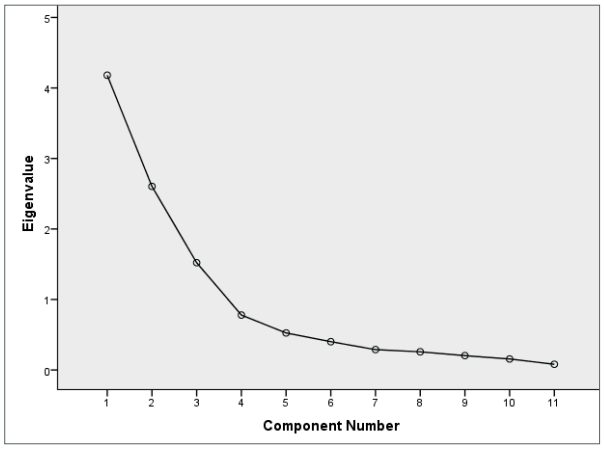

Figure 1. Cattell slope model (MRS),

The curve on the scree plot the change in slope already at factor number 3, so we according to Cattell model excluded factors that continue to gentle slope.

On table 3 we have a univariate analysis of variance on the initial and final measurements for the extracted factors. The obtained F-score (F=3.168) showed that there was a significant difference in the observed symptomatology by MRS, as p=.047.

	Sum of Squares	df	Mean Square	F	*Sig.	
Variance	Between Groups	1.044	2	.522	3.168	.047
	Within Groups	15.818	96	.165		
	Total	16.862	98			

Table 3. Univariate ANOVA of extracted factors

Measure-ment	N	Symptomatology – MRS			
		Somatic-vegetative Mean (SD)	Psychological Mean (SD)	Urogenital Mean (SD)	
Sample	Initial	192	4,2 (3.1)	3.8 (3.2)	1.9 (2.4)
	Final	192	3.4 (2.6)	3.4 (2.9)	1.9 (2.2)

Table 4. Arithmetic mean of the MRS scale results

The table 4 shows the arithmetic means of the MRS scale results.

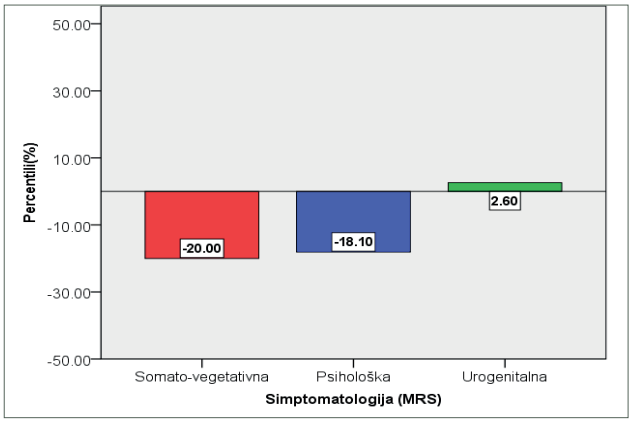

Figure 2. Percentage decrease in menopausal symptoms

In our study there was a significantly decrease in somatic-vegetative and psychological symptoms under the influence of phytoestrogens, while urogenital symptomatology was not significantly changed.

6. DISCUSSION

Dilemma among patients, but also medical professionals after the announcement of results from Women's Health Initiative (WHI) (3), Heart and Estrogen/Progestin Replacement Study (HERS) (4) and the recent British Million Women study (5) caused a significant growth of interest in „natural and safe substitute for estrogen" (6). Although hormone therapy is most effective for the alleviation or complete reduction of menopausal symptoms, the contradiction regarding the long-term use of hormone preparations promote the interest in other alternative therapeutic options (7).

Review of clinical and epidemiological studies showing different results regarding effects of phytoestrogens on menopausal symptomatology: from 14 clinical studies on the effects of phytoestrogens on reduction of vasomotor symptoms, five were positive, seven negative and two were inconclusive (8). In positive studies benefit was significant but moderate.

In parts of the world were the use of phytoestrogens in the diet is part of the tradition, there is lower incidence of breast cancer, endometrium and prostate (8).

They inhibit the proliferation of estrogen receptor-positive breast cancer cells (9), bind to the estrogen receptors in the uterus and pituitary gland while do not stimulate the estrogen-dependent genes in the uterus, and at the same time promoting the expression of estrogen-dependent genes in the brain and the bones (10, 11). With the estrogen receptor-modulating activity, phytoestrogens produces other biological effects: block serotonin receptors and demonstrate dopaminergic activity (12, 13). Randomized, placebo-controlled clinical study (Wutke et al.) effects of phytoestrogens three months therapy, showed an indifferent relation towards the endometrium and stimulation of cell proliferation of superficial vaginal epithelium (14).

In our study, the results suggest that phytoestrogens had an indifferent relation towards the endometrium and does not stimulate its proliferation.

Phytoestrogens contains flavonoids and compounds similar to sex steroids (15). Binding to opioid receptors (β endorphins and neuroactive flavonoids) is one of the mechanisms by which phytoestrogens act on reducing menopausal psychological (irritability, aggression, tension, anxiety, depression) and somatic symptoms (headaches, bloating, mastodynia, retention of body fluids) (16, 17).

Ten years ago, with conventional hormone therapy in postmenopausal women, there was also appearance of a range of alternative options. Some are medically valuable, some are not, while most are still in the process of evaluating where polypragmasia (in the case of herbal mixture) makes reaching conclusions more difficult.

Medical professionals who participate in the process of prescribing/issuing additional curative agents („supplements") must be well informed and suggest only those agents whose application is based on scientifically proven effects. The fact is that most physicians are not familiar with quality evidence on efficacy of some herbal preparations or method of complementary and alternative medicine that actually exist (18).

Most developed countries of the Western world have recently introduced or introduced special offices for Complementary Medicine and one of their most important goals is the scientific evaluation. Accumulation of well-designed prospective studies will demonstrate the value of treatment or therapy (effects on wanted outcomes, dosage, duration, etc.), so maybe they will lose an adjective of alternative and be incorporated in the standard „Western" medicine (19).

7. CONCLUSIONS

Application of phytoestrogens significantly reduces psychological and somatic-vegetative symptoms in early postmenopausal women, while urogenital symptomatology has not changed.

We recommend the use of phytoestrogens in early postmenopausal women with moderate symptoms.

The research hypothesis is largely confirmed and the results of this study confirm the positive association between the use of phytoestrogens and quality of life in postmenopausal period.

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