Research article

Social and biological factors related to the development of climacteric syndrome in women from Kyrgyzstan

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ABSTRACT

Introduction and Aim: Climacteric syndrome (CS) is observed in 50–80% of women over 50 years of age, which is related to the most common age-specific diseases in women. The objective of this study is to evaluate social and biological factors of the development of menopausal disorders and their incidence in women from Kyrgyzstan.

Methods: This is a cross-sectional study conducted on 1465 women aged between 35–64 years. Premenopausal and postmenopausal (<10 years) women from Kyrgyzstan were included and women with surgical menopause were excluded from this study.

Results: The mean age of perimenopause and postmenopause onset was 44.4 ± 3.66 years and 48.26 ± 3.87 years. Analysing gynecologic history in examined women reported that 46% and 25.5% suffered from menstrual disorders and premenstrual syndrome. Considering comorbidities, in examined women hypertension (48.9%), thyroid gland diseases (50.2%), gastrointestinal tract and hepatobiliary system diseases (39.6%), obesity (36.9%), and urinary system diseases (26.6%) were observed.

Conclusion: Even though there are some researchers who studied social and biological factors of the development of menopausal disorders, their nature, and incidence in women from Kyrgyzstan, this study is necessary for solving the problems in medical care and management of CS in women with comorbidities and gynecologic histories.

Keywords: Climacteric syndrome; menopausal disorders; pre-menopause; post-menopause; gynecologic history.

INTRODUCTION

Climacteric syndrome (CS) is observed in 50–80% of women over 50 years of age, which is related to the most common age-specific diseases in women (1, 2). According to many studies, the most common typical clinical signs of CS were neurovegetative, psycho emotional, urogenital disorders, dystrophic changes in the skin and its appendages, an increased risk of atherosclerosis, coronary heart disease, and systemic osteoporosis (1-3). Severe forms of CS were observed in 34.5–51% and moderately severe in 33-47.5% of women. Only in 18% of patients the signs of CS have no manifestations even during the first year, in 56% of cases the disease progression takes 1-5 years, and in 26% of cases, the disease has a longer manifestation period (1, 4). Studying physiological and pathological processes in the woman's body during the period of transition from late reproductive to premenopausal age, and then menopausal periods is of obvious relevance to ensure the prevention of CS and enhance the quality of life. CS is characterized by a considerable decrease in the concentration of estrogens and an increased content of gonadotropins, where significant hormonal changes occur.

A study conducted among 110 examined women aged 49-57 years showed menopausal disorders (4) in 86.3% of cases such as hot flushes (68%), hyperhidrosis (80%), insomnia (61%), irritation (61%), and anxiety (61%).

The atherogenic index in women during perimenopause is 12.4 ± 1.95, a four-fold increase in standard values, which is unfavorable and leads to the development of atherosclerosis and cardiovascular diseases (CVDs) (5). Visceral adipose tissue, as opposed to differently localized adipose tissue, has a vast network of capillaries and is directly linked to the portal liver system. Menopausal symptoms and sleeping disorders in menopausal women are interdependent; the data of the research on the efficiency of treatment aimed at improving sleep quality and menopausal symptoms with melatonin and phytoestrogens were systematized (6).

Among psycho-emotional symptoms, depression and impairment of memory are most commonly observed (7). Some studies showed that screening tests of menopausal women are needed to make a preventive correction of hormone dysfunction of the thyroid gland. Hormone replacement therapy should not be considered in terms of a short-term approach, only to relieve the symptoms of CS (7), it must be considered in the context of long-term treatment, which has a systemic effect on the body. Although menopause is a natural period in the life of every woman, it is associated with worsened quality of life due to hormonal shifts in the body. The objective of this study was to evaluate social and biological factors of

the development of menopausal disorders and their incidence in women from Kyrgyzstan.

MATERIALS AND METHODS

This is a cross-sectional study conducted on 1465 women aged between 35-64 years. Premenopausal and postmenopausal (<10 years) women from Kyrgyzstan were included and women with surgical menopause were excluded from this study.

In this study, the Incidence of CS, the structure of CS, and risk factors for the development of menopausal disorders in women from different regions of Kyrgyzstan were evaluated based on the cause-and-effect relationship between the state of women's health in menopause and climate-geographical, production-related, social, domestic, and medico-biological factors. To obtain the information, specifically developed questionnaires, tables to compute a modified menopausal index, extracts from the medical documentation data, and questionnaires to define the quality of life were included.

To identify the women with CS, not only employed personal interviews with women, but also the analysis of questionnaires such as do you have sudden hot flashes to the head and chest, accompanied by excessive sweating, headache, dizziness, an increase in arterial blood pressure, irritation, easy crying, insomnia, and easy fatigability were considered. Out of 1465 examined women, CS was diagnosed in 67.4% of women, and in 477 (32.6%) examined women physiological changes in menopausal transition were observed.

When there were symptoms of menopausal disorders, to determine the clinical form of CS and severity of its course, the method of computing menopausal index was employed, proposed by Kupperman *et al.*, (8). To analyse the effects of social conditions, economic status, migration, social demand on the clinical progression of the menopausal disorders, all the examined women were divided into two groups such as urban and rural women. The percentage of urban women of the total number of women with menopausal disorders were urban [453 (45.9%)], rural [535 (54.1%)] women; in the group of women with physiological changes in menopausal transition there were urban [247 (51.8%)] and rural [230 (48.2%)] women. In the group of women with menopausal disorders, there were premenopausal [359 (36.3%)] and postmenopausal [629 (63.7%)] women.

To evaluate the effect of various factors such as climate-geographical, socio-economic, and medico-biological, on the formation of menopausal disorders among women in menopausal transition, the results of the single-step statistical survey carried out using a specially compiled questionnaire were analysed. A method of the total survey through house-to-house rounds in various regions of Kyrgyzstan, work in focus groups, and meetings in outpatient clinics, enabled the analysis of the menopausal disorders in examined women.

The obtained data are presented as the % (percentage) or ± m (mean) and n (%). Statistical analysis was performed using Excel.XLSTAT v2020.1 (Microsoft, Addinsoft, Paris, France), $p < 0.05$ was considered statistically significant. This study was approved by the Bioethics Committee of the I.K. Akhunbaev Kyrgyz State Medical Academy (Protocol No. 1 dated January 20, 2014). Informed consent was obtained from the parents of school children to conduct a survey of children.

RESULTS

In this study, examined women were aged between 35-64 years (mean age was 48 ± 4.1 years). Considering employment status, 398 (27.2%) women were workers, office staff [263 (18%)], housekeepers [358 (24.4%)], entrepreneurs [333 (22.7%)], and agricultural workers [113 (7.7%)]. Considering residence, 700 (47.8%) urban and 765 (52.2%) rural women.

During the study, 565 (38.6%) women were undergoing pre-menopause and their menstrual function remained active, 900 (61.4%) were in post menopause. The mean age of perimenopause and post menopause onset was 44.4 ± 3.66 years (mean duration was 5.7 years) and 48.26 ± 3.87 years. According to the family status, women were married [1096 (74.8%)], unmarried [369 (25.2%)], widows [131 (8.9%)], divorced [150 (10.2%)], and sexually active [1166 (79.6%)] were observed.

In the examined women, irrespective of the menopausal transition, their living conditions were classified as good [735 (50.2%)], satisfactory [558 (38%)], and bad [172 (11.7%)]. During answering the questionnaire and personal interview, the women clearly differentiated the attributes of defining good living conditions such as availability of cold and hot water, temperature, light, sewage, and other factors. In addictions, only 2% of women reported smoking, 61.5% of women did not consume alcohol, 528 (36%) and 36 (2.5%) consumed once per month and every week respectively.

As it is seen from Table 1, the analysis of reproductive history in the examined women had shown the mean age of menarche (13.74 ± 2.03). Considering comorbidities, in examined women hypertension (48.9%), thyroid gland diseases (50.2%), gastrointestinal tract and hepatobiliary system diseases (39.6%), obesity (36.9%), and urinary system diseases (26.6%) were observed.

Table 1: General characteristics of examined women

Analysed parameters	**n = 1465**	**% or ± m**
Residence		
Urban	700	47.8%
Rural	765	52.2%
Reproductive history		
Mean age of menarche*	13.74	±2.03
Average number of pregnancies*	11	±4.3
Average number of deliveries*	5.0	±1.3
Average number of abortions*	5.5	±2.19
Average number of spontaneous miscarriages*	1.7	±0.7
Postpartum and postabortion complications	84	5.7%
Preeclampsia/eclampsia	151	10.3%
Postpartum bleeding	157	10.7%
Gynaecologic history		
Pre-existing menstrual disorder	679	46.3%
Premenstrual syndrome	374	25.5%
Inflammatory diseases of uterus/adnexa*	309	21.1%
Benign neoplasms*	272	18.6%
Uterine myoma*	205	14.0%
Comorbidities		
Hypertension*	717	48.9%
Coronary heart disease*	210	14.3%
Pre-existing infarction*	42	2.9%
Cerebro-vascular insufficiency*	77	5.3%
Endocrine systems and metabolic diseases		
Diabetes mellitus	107	7.3%
Diseases of thyroid gland	738	50.4%
Obesity	540	36.9%
Urinary system diseases		
	390	26.6%
Gastro-intestinal tract and hepatobiliary system diseases		
	580	39.6%
Bronchopulmonary system diseases		
	81	5.5%

% or ± m = percentage or ± mean, n = frequency, *p > 0.05.

Analysing gynaecologic history in examined women reported that 46% and 25.5% suffered from menstrual disorders and premenstrual syndrome. Preeclampsia (10.3%) and postpartum bleeding (10.7%) had the most significant proportion in obstetric history.

Endocrine systems and metabolic diseases showed only 11 (1.12%) noted that their body weight with the onset of menopause decreased. 284 (2.6%) women observed that their weight slightly increased, 693 (70%) women with the initially increased weight noticed a considerable body weight gain with the onset of menopause, with that in 120 (17.3%) women, the weight increased very quickly, in 376 (54.3%) women gradually, 197 (28.4%) women even didn't notice that they gained weight. Body mass index (BMI) ≤18.5kg/m^2, which corresponded to the body weight deficit, was only in 21 (2%) women, BMI exceeded not more than 24.99 kg/m^2 in 274 (27.7%) examined women, with that 22 (2.2%) women, despite the minor body weight gain, had normal weight, BMI = 25–29.99 kg/m^2 and overweight was observed in 267 (27%) women, BMI = 30–34.99 kg/m^2 and obesity (class I) was observed in 190 (19.2%) women; BMI = 35–39.99 kg/m^2 and obesity (class II) was observed in 179 (18%) women; BMI =>40 and obesity (class III) was observed in 57 (5.8%) women, there were 426 women with various obesity classes out of 988 women with menopausal disorders (43%), and overweight (27%). 500 (50.6%) women had >80 cm waist circumference (WC). The group of women with abdominal circumference (AC) >80 cm incorporated not only patients with BMI >30, indicating various forms of obesity, but also 74 women from the group with overweight; their WC didn't exceed 82 cm. In 360 (72%) examined women, WC was from 80–88cm, in 57 (11.4%) of the total number of women with high WC indices, women WC >88 cm, which also confirmed the presence of massive abdominal obesity. We have studied more thoroughly the women with obesity (class III) and AC >88 cm to identify the metabolic syndrome. The diagnosis of metabolic syndrome was established, based on Adult Treatment Panel III criteria 2001 (9), with the presence of any three below-listed factors: AC >88cm, exceeded level of triglycerides >1.69 mmol/l, reduced cholesterol of high-density lipoproteins <1.29 mmol/l, arterial pressure>130/85 mm Hg, and more than 6 mmol/l glucose level.

Arterial pressure in all those examined exceeded the normal levels, the glucose level was >6.1 mmol/l in 53 (92.8%) of examined women, with that in 17 (29.8%) women it was detected for the first time, in 39 (68.4%) the level of triglycerides was within 1.8–2.2 mmol/l range. Only 4 (7%) women from the study group have no combination of the three necessary criteria to assign them to the metabolic syndrome group. Thus, 5.8% of women with CS have a severe form of the endocrine system and metabolic diseases. 538 (54.5%) women mentioned that they have various problems in the thyroid gland, and 86 (16%) of them had a thyroid nodule.

Considering cognitive disorders, 948 (95%) examined women reported that with the onset of menopause, their working capacity was decreased, with efforts 868 (88%) women switching to other activities, and reported concerns about impaired memory, with the degree of memory impairment in the women varied greatly depending on clinical manifestations of menopausal disorders.

Examining sexual disorders revealed 603 (77%) women out of 784 sexually active noticed a decrease in sexual activity, and 24 (2.4%), to the contrary, an increase, 517 (66%) women of 784 sexually active, reported that they had lost the ability to reach an orgasm, 154 (19.6%) refused to answer this question, the degree of sex satisfaction decreased in 113 (14.4%).

DISCUSSION

In this study, the majority of them were postmenopausal women aged 55–59 years, and in premenopausal women majority of them were from 45–49 years of age. This study revealed CS and physiological changes in menopausal transition in 67.4% and 32.6% of women. The difference in the distribution of women by residence locations is based on the fact that no diseases occur in physiological changes with satisfactory quality of life, while in pathological progression with existing negative premorbid background, quality of life affects menopausal transition less significantly. From the results, the thyroid gland diseases were found to have the highest proportion in the history among comorbidities, with more than half of study cases along with hypertension, then the gastrointestinal tract and hepatobiliary system diseases were found in more than one-third of cases, obesity (37%) and urinary system diseases (26.6%). This study reported pathological progression in the group of women with endocrine systems and metabolic diseases, which is like many studies published (10-15).

Obstetric complications in the examined women, preeclampsia, and postpartum bleeding similarly. In examined women, WC exceeded 88 cm, confirmed by massive abdominal obesity, 11.4% of the examined women with high WC indices, which is similar to the study on the development of various CVDs, with a twofold increase in CVDs observed in women with a WC from 80–88 cm (moderate abdominal obesity), and a fourfold increase in the risk of developing CVDs with a WC of >88 cm means (massive abdominal obesity; 16).

It is noted that the risk group for developing different CVDs included not only obese women but also the women with overweight. From the data of numerous studies, menopause increases the risk of developing CVDs, especially in women over 50 years (12). In women with metabolic syndrome during perimenopause, an increase is seen in the level of triglycerides from normal 0.7–1.7 to 2.74 ± 0.1 mmol/l, which shows that there is hypertriglyceridemia (5).

It proves an increase in the level of total cholesterol to 6.72 ± 0.13 mmol/l and low-density lipoproteins to 3.93 ± 0.1 mmol/l and a decrease in the level of high-density lipoproteins to 0.6 ± 0.08 mmol/l were observed. Obesity was observed in 36.9% of women, where 11.4% of them had a fourfold increased risk of developing CVDs. During the coronavirus disease 2019 (COVID-19), obesity and overweight in women can increase the risk of severe illness of COVID-19 and other comorbidities (17), where even COVID-19-affected in pregnant women is also associated with obesity (18, 19). During the COVID-19 pandemic, increased weight is observed in the majority of women in different physiological and pathological states (20). It is important to evaluate the volume of adipose tissue with the use of the most precise and accessible methods of dual X-ray absorptiometry, which is much more informative as compared to anthropometry and bioelectric impedance analysis. From the results of examining sexual dysfunctions, in 77% of cases, sexually active women notice a decreased sexual activity, with that in 2.4% of cases, on the contrary, there is an increase, and 66% of women note that they had lost the ability to reach an orgasm, in 14.4% the degree of sex satisfaction decreased.

CONCLUSION

Even though there are some researchers who studied social and biological factors of the development of menopausal disorders, their nature, and incidence in women from Kyrgyzstan, this study is necessary for solving the problems in medical care and management of CS in women with comorbidities and gynecologic histories.

CONFLICTS OF INTEREST

None.

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