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FEATURES OF MYOCARDIAL INFARCTION IN WOMEN OF CHILDBEARING AGE WITH ENDOCRINE

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Abstract: Our study has convincingly demonstrated the role of hormonal disorders in women with ischemic heart disease in different age groups, which must be taken into account when planning preventive measures aimed at reducing the prevalence and mortality from ischemic heart disease. In women, regardless of age, dysfunction of the gonads is an additional risk factor for coronary artery disease. If different age groups, changes in hormonal status in women with coronary artery disease are not the same.
Keywords: myocardial infarction, fertil women, hormonal status

Relevance. There are well-known risk factors for coronary heart disease (CHD), which are important in the development of the disease in women, but there is a different frequency of occurrence and significance of these factors than in men. At the same time, some risk factors are unique for women, given their reproductive status, in particular, taking oral contraceptives, menopause, metabolic disorders during pregnancy and childbirth, late onset of pregnancy, artificial termination of pregnancy and a burdened gynecological history.[2] Currently, a link has been established between the prevalence of coronary heart disease and a burdened gynecological history. According to the degree of risk of atherosclerosis and coronary heart disease, the most dangerous are uterine fibroids, postmorbid gestosis, the use of sex hormones and hormonal methods of contraception. A less significant risk factor (FR) can be attributed to premature nonsurgical menopause (ovarian hypofunction with amenorrhea) [1]. Not only with natural, but also with surgical menopause, including hysterectomy with removal and preservation of the ovaries, the risk of cardiovascular disease (CVD) increases. According to some data, after extirpation and supravaginal amputation of the uterus without ovariectomy, the course of arterial hypertension (AH) worsens if it occurred before menopause, and the risk of an increase in blood pressure (BP) increases. In women under 50 years of age, hysterectomy without ovariectomy is associated with a significant increase in the risk of cardiovascular diseases. For women under 50 years of age with hysterectomy and ovariectomy, the risk of cardiovascular diseases increases by 1.5 times compared to those who had only a hysterectomy. For women over 50 years of age with a hysterectomy or ovariectomy, the risk of cardiovascular diseases increases slightly and it is lower than in young women.[3] Thus, not only the volume, but also the time of surgical intervention is of fundamental importance. Bilateral ovariectomy performed in women younger than 35 years increases the risk of MI by 7 times. It is believed that estrogens can have both positive and negative effects on the cardiovascular system.[4]

Estrogens can positively affect blood lipid levels by reducing the concentration of low-density lipoprotein (LDL) cholesterol and increasing the concentration of high-density lipoprotein (HDL) cholesterol; promote vasodilation caused by nitric oxide (NO), and also suppress the vascular response to damage and prevent the development of atherosclerosis, increase the fibrinolytic potential of the blood.[3]

On the other hand, the action of estrogens leads to an increase in the level of triglycerides and C-reactive protein (CRP). As well as estrogens, due to various mechanisms, contribute to an increase

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in blood clotting, increasing the level of prothrombin and reducing the concentration of antithrombin III. Estrogens increase cardiac output, reduce peripheral vascular resistance, increase the fibrinolytic potential of the blood and restore vascular reactivity. Estrogens can also have a direct effect on the heart and blood vessels. The effects of estrogens are carried out due to estrogen receptors, two of which have been identified and both types of receptors are present in cells and tissues of the cardiovascular system[1]. There is more and more evidence that the effect of estrogens on blood vessels, at least in part, depends on the severity of atherosclerosis. It has been established that the expression of estrogen receptors is significantly reduced in the arteries affected by atherosclerosis [2], therefore, the direct effects of estrogens, which partly determine their antisclerotic effect, will be less or even absent in such vessels, depending on the effect on the receptors. A number of epidemiological studies have found an increase in the relative risk of developing CVD among women who used estrogens. For example, in the HERS study, the following results were obtained: the use of hormone replacement therapy HRT (estrogen/progesterone) in postmenopausal women, it actually led to an increase in coronary heart disease after a year of treatment, but to a decrease in coronary heart disease after four or five years of taking [6] probably the effect of these drugs increases blood viscosity, the activity of the blood clotting system, which leads to thromboembolic complications, myocardial infarction. It is also necessary to remember about the atherogenic effect of contraceptives on metabolism. A slightly different dynamics of hormonal status is observed in the population of 40-49 years. In this group, testosterone (T) levels significantly increase and estragens (E) decrease ($p<0.05$), and changes in progesterone (P) levels are statistically insignificant.

The purpose of the study . Study of hormonal status in women of fertile age with myocardial infarction

Material and methods of research . The study involved 22 patients who were treated for acute myocardial infarction with and without a Q wave, who were admitted to the Department of emergency Cardiology of the Republican Scientific Center for Emergency Medical Care of the Bukhara branch. The age of the patients ranged from 25 to 45 years, the average age was 35.5± 8.5 years. The second group included patients aged 46 to 60 years, the average was 53±7 years.

We analyzed reports on patients who were admitted in the period from April 2018 to October 2020 with an acute typical manifestation of acute coronary syndrome (ACS) or with a diagnosis of myocardial infarction with or without a Q wave (referred patients from other medical institutions). The diagnosis was made based on the criteria for the diagnosis of ACS including:

- includes acute and prolonged (more than 20 min) anginal pain at rest, while taking into account atypical pain;

- the presence of typical ECG changes (ST elevation ≥0.1 mV in standard leads and/or ≥0.2 mV in precardial leads with characteristic dynamics, the appearance of a pathological Q wave, acute blockade of the left leg of the Gis beam) - horizontal depression of the ST segment and/or a "coronary" negative T wave. Blood was taken from all patients for biochemical studies, blood clotting, general blood analysis, analysis of female hormones (estrogen and progesterone).

The results of the study and discussion Our study showed that coronary heart disease was and still remains an urgent health problem, occupying a leading position in prevalence among young women. For a long time it was believed that myocardial infarction (MI) occurs mainly in the population of middle-aged and elderly people, but currently its development in people younger than 45 years ceases to be a casuistry.

Table *1* Dynamics of sex hormones in women with myocardial infarction in different age groups

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Age	Estradiol (ng/ml)	Progesterone(ng/ml)
30-39 (n=6)	2,1	16,5
40-49 (n=16)	0,62	36,3
50-59 (n=20)	0,25	56,0

Numerous studies have shown that a decrease in the estrogen content in menopausal patients is associated with the development of endothelial dysfunction and the deposition of lipids in the vascular wall, which over time can lead to the development of atherosclerosis. In different age groups, changes in hormonal status in women with coronary heart disease are not the same. At the young age of 30-39 years , a decrease in E is characteristic , at the average age of 40-49 years, E decreases without a significant change in P, in older age groups of 50-59, P decreases significantly.

Table2 The use of contraceptives among women in the study groups.

	1- group	2-group
Oral contraception	8(36,3%)	1(4%)
Injectable contraception	3(13,6%)	5(20%)
Menopause		15(60%)

Currently, a link has been established between the prevalence of coronary heart disease and a burdened gynecological history. According to the degree of risk of atherosclerosis and coronary heart disease, the most dangerous are uterine fibroids, postmorbid gestosis, the use of sex hormones and hormonal methods of contraception. Premature nonsurgical menopause can be attributed to less significant FR (ovarian hypofunction with amenorrhea is also considered an important risk factor in women taking hormonal contraceptives of the estrogen-progestin series. Under the influence of these drugs, blood viscosity increases, which leads to thromboembolic complications, myocardial infarction. It is also necessary to remember about the atherogenic effect of contraceptives on metabolism. Among the studied women in group 1, 8 (36.3%) used oral contraception (OK), 3 (13.6%) injectable contraception (IC). In the 2nd group, 5 (20%) women failed IC, and 15 (60%) women went through menopause.

Table 3 Gynecological operations performed among women under study

Age	Extirpation of uterus and uterus	Ovariectomy (ovarian cyst)	Mastectomy (cancer breast)	Abortion

	(myoma uterus)			
30-39 n=6		2(33,3%)	1(16,6%)	2(33,3%)
40-49 n=19	2(10,5%)	3(15,7%)		3(15,7%)
50-60 n=22	1(4,5%)		1(4,5%)	3(13,6%)

Not only with natural, but also with surgical menopause, including hysterectomy with removal and preservation of the ovaries, the risk of CVD increases. Among the studied women aged 30-39 years, ooparectomy (33.3%), mastectomy (16.6%), abortion and miscarriage (33.3%) were performed. In women aged 40-49, ooparectomy (15.7%), hysterectomy (10.5%), abortions (15.7%) will increase. Increase 50-60 years of hysterectomy (4.5%), mastectomy (4.5%), and abortion (13.6). This confirms the fact that the cessation of ovarian function and the subsequent development of a deficiency of sex hormones contributes to the occurrence of metabolic and vascular changes, the emergence of latent risk factors for CVD.

Conclusions

1. Our study has convincingly demonstrated the role of hormonal disorders in women with coronary heart disease in different age groups, which should be taken into account when planning preventive measures aimed at reducing the prevalence and mortality from coronary heart disease.
2. In women, regardless of age, impaired function of the genital glands is an additional risk factor for coronary heart disease.
3. In different age groups, changes in hormonal status in women with coronary heart disease are not the same. At the young age of 30-39 years, a decrease in E and P with an increase in T is characteristic; at the average age of 40-49 years, E decreases, T increases without a significant change in P, in older age groups of 50-59 and 60-69 years, P decreases significantly without significant changes in E, etc.

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