

Modern Hormonal Contraception for Comorbid Conditions

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Annotation. *Obesity is a serious social and medical problem. Reproductive age women in obesity and overweight have an addiction of reproductive system, complication of pregnancy, childbirth and postpartum period. These patients have risks of developing somatic and gynecological pathologies. The article presents date of the treatment in obesity reproductive age women.*

Key words: *Obesity, reproductive complication, calorie content, physical activity, metomorphine, rosgitazone*

Obesity is a serious medical, social and economic problem in modern society. Its relevance is determined primarily by its high prevalence. According to WHO experts, if the current growth rate of incidence continues, by 2025 there will be more than 300 million people in the world with this diagnosis, of which more than 200 million will be women of fertile age. According to WHO, overweight (BMI \geq 25 kg/m²) occurs in 40% - 66.3% of the adult female population [5]. Every year, 2.8 million people die worldwide due to overweight and obesity [23]. The prevalence of obesity among women of reproductive age is about 25% [6]. In developing countries, the prevalence of overweight and obesity among children is 30% higher than in developed countries. If this trend continues, the number of overweight children will increase to 70 million by 2015. Schokker et al. [29] believes that childhood obesity will lead to a significant increase in weight-related infertility in adults. According to the literature in the United States, for example, from 33 to 50% of women are obese, and 8% of women of reproductive age have a body mass index above 40 [20]. In Russia, the incidence of obesity among women is 30-40% [11].

Obesity is excess deposition of fatty tissue in the body. Based on etiology, they distinguish between primary obesity (nutritional and caused by genetic defects), symptomatic (associated with other endocrine and mental diseases) and iatrogenic [7]. To quantify obesity, body mass index (BMI) is used: body weight, kg/height, m². According to the WHO classification, a BMI of 30 and above corresponds to obesity. The distribution of adipose tissue is assessed by the ratio of waist circumference to hip circumference (WC/HC). In women, the android type of obesity corresponds to a ratio higher than 0.83, and the gynoid type – less than 0.83 [11].

Obese patients have an increased risk of developing many diseases - lipid metabolism disorders, diabetes mellitus, arterial hypertension, cholecystitis, osteoarthritis [24]. Excess aromatase in adipose tissue leads to hyperestrogenemia and an increase in the incidence of estrogen-dependent diseases (breast cancer, endometrial cancer). Overweight and obesity increase the risk of developing complications during pregnancy such as gestational diabetes mellitus, hypertension, preeclampsia, premature birth, and antenatal fetal death. This is dangerous for fetuses from the point of view of the



development of developmental anomalies, macros, and birth trauma [30,31]. During childbirth, the frequency of cesarean section increases significantly to 32.6% in women with a BMI of 30-35, to 36.9% with a BMI of 35-40, and to 47.4% with a BMI of more than 40 [18.]. After childbirth, septic complications often develop.

Very often obesity is combined with hormonal dysfunction of the ovaries. 45% of obese women develop reproductive dysfunction. The incidence of infertility in obese women is 33.6%, which is 2 times more common than in women with normal body weight. Obese women are 2-5 times more likely to experience various menstrual irregularities [4,7,8]. In the practice of a gynecologist, one of the most common causes of anovulation in combination with insulin resistance, hyperinsulinemia and obesity is polycystic ovary syndrome (PCOS), which occurs in 4-7% of women of reproductive age, and 65% of these women are overweight or obese [11].

The causal role of obesity in the pathogenesis of reproductive system dysfunction is confirmed by the restoration of the ovulatory menstrual cycle after a decrease or normalization of body weight [12, 19, 25].

It has been proven that menstrual function is normalized with a loss of 5 to 10% of body weight. For this purpose, comprehensive metabolic therapy is carried out, including the principles of a healthy diet and medications. Many authors believe that normalization of body weight leads to the restoration of metabolic and hormonal homeostasis, which contributes not only to the implementation of the generative function, but also to the reduction of health risks and the development of long-term healthy lifestyle skills [13]. With the development of obesity, a decrease in body weight of less than 5% of the initial one does not lead to the expected effect, 5-10% gives a satisfactory effect, and more than 10% leads to a good treatment effect [22]. It is considered optimal to reduce body weight by 0.5-1 kg per week. To implement the principles of rational nutrition, it is necessary to calculate the calorie content of the daily diet, proposed by WHO [2, 13, 21]. The scheme of this calculation for women is as follows:

18-30 years: $(0.0621 \times \text{weight in kg} + 2.0357) \times 240 \times \text{physical activity coefficient}$

The physical activity coefficient is calculated from the level of physical activity:

low physical activity (mental, sedentary, light housework) – coefficient 1.0

moderate physical activity (work involving walking, physical education at least 3 times a week) – coefficient 1.3

high physical activity (hard physical work, sports) - coefficient 1.5

To reduce body weight, the resulting calorie content of the daily diet is reduced by 20%

I.B. Manukhin et al. [9,10] proposed a simplified scheme: a patient with overweight or obesity needs 22 kcal per 1 kg of weight to maintain weight. To reduce body weight, the resulting daily caloric intake is reduced by 700 kcal.

D.G. Bessesen and R. Kushner [3] give the following practical recommendations:

- eat fruits and vegetables more than 5-7 times a day
- take dietary fiber 25-30 g/day
- there are varieties of bread made from wholemeal flour
- drink at least 1.8 liters of water per day
- consume low-fat dairy products at least 2 times a day
- choose protein foods with low fat content
- eat fish at least 2 times a week
- limit table salt intake to 2.4 g/day

The use of insulin sensitizers is not only indicated in the presence of insulin resistance, but also helps reduce the risk of developing hyperstimulation syndrome during in vitro fertilization in patients with



PCOS [13]. Among medications, in insulin-resistant patients with normal body weight, metformin therapy is recommended at the first stage. The drug from the biguanide class Metformin (Glucophage, Siofor) leads to a decrease in peripheral insulin resistance, improving the utilization of glucose in the liver, muscles and adipose tissue, normalizes the blood lipid profile, reducing the level of triglycerides and LDL, without affecting the function of pancreatic β -cells. The drug is prescribed at a dose of 1000-1500 mg/day according to the control of a glucose tolerance test. The duration of therapy is 3-6 months, including against the background of ovulation stimulation [28]. Meta-analyses show that the use of metformin in obesity and PCOS leads to a significant reduction in body weight [27].

In recent years, rosglitazone, a drug from the group of thiazolidinediones, which is a selective ligand of specific nuclear receptors capable of inducing the synthesis of proteins responsible for the transport of glucose into the cell, has been used to treat insulin resistance. L.B.Liao et al. [26] in their study compared the effectiveness of metformin and its combination with rosglitazone in obese women with PCOS. The results of the study showed that the level of fasting insulin, the indicator of insulin resistance, the level of luteinizing hormone, testosterone, and low-density lipoproteins decreased significantly in both groups, but when the drugs were combined, the effect was more significant.

In a study by E.N. Andreeva et al. [1] showed that the combination of sibutramine/metformin has a significant effect on the normalization of carbohydrate and lipid metabolism.

Thus, women of reproductive age who are overweight should first be prescribed therapy aimed at reducing body weight for the treatment and prevention of somatic and gynecological diseases, reproductive dysfunction, complications of planned pregnancy, childbirth and the postpartum period.

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