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CHALLENGES AND HAZARDS OF PREGNANCY, DELIVERY AND OFFSPRING HEALTH IN WOMEN WITH OBESITY

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Abstract: In recent decades, there has been a global surge in obesity rates, reaching epidemic proportions. Consequently, the incidence of obesity during pregnancy has experienced a significant rise. Maternal overweight and obesity during gestation have been linked to adverse outcomes for both the mother and the child. Moreover, research indicates that maternal obesity can have enduring effects on the offspring, elevating their susceptibility to obesity and cardiometabolic conditions later in life. During late pregnancy, inflammation appears to undergo alterations in cases of maternal obesity, characterized by heightened activation of macrophages and upregulated expression of cytokine genes in the placenta. Additionally, certain cytokines demonstrate increased levels in the fetal bloodstream in obese pregnancies compared to those of normal weight. Notably, these changes in macrophage activation and cytokine gene expression were particularly prominent and statistically significant in placentas associated with male embryos. These findings offer valuable insights into placental modifications occurring in the context of obesity and suggest potential connections between placental inflammation and the programming of diseases in the offspring of obese mothers.

Key words: obesity, pregnant women with obesity, fetoplacental complex, perinatal risk.

Introduction. Obesity is one of the important medical and social problems of modern medicine in protecting the health of mothers and children [1].

The urgency of the problem is indicated by the progressive increase in obesity, often among women of reproductive age and severe perinatal outcomes. Who takes attention to obesity as the epidemic of the century; in 2006, about 300 million obese patients were registered in the world. In Western Europe, from 10 to 25% of the population is obese (with a BMI of > 30 kg / m^2), in the USA - from 25 to 30%, in Russia, obesity and overweight affect more than 25% of the able-bodied population and in the countries of Central Asia from 22 to 26% [5].

According to the literature and practice in obstetrics, indicate that obesity significantly complicates the course of pregnancy and childbirth, contributing to the occurrence of obstetric complications 2-3 times more often than in women with normal body weight [2].

Objective: Comparative study of the process of pregnancy and childbirth in normal and obese pregnant women. Determine the relationship of complications with the degree of obesity.

Material and methods.

1. Calculation of the body mass index of pregnant women
2. Dependence of complications of pregnancy and childbirth on the degree of obesity by correlation analysis.

Venue: Bukhara Regional Perinatal Center.

Data source: the birth histories of 60 women delivered in the Bukhara Regional Perinatal Center in the period from October 1 to December 1, 2022 were analyzed.

Clinical groups: All women examined were divided into 3 clinical groups according to the level of obesity. Group 1 consists of a woman with a BMI of 30.0 to 34.9, that is, with an I degree of obesity; Group 2 - women with the II degree of obesity, whose BMI is 35.0-39.9; 3 clinical group on the III degree of obesity, BMI >40.0.

In the literature, excess body weight is estimated by body mass index (BMI) index. It is calculated by the formula: body weight (kg) / height squared (m^2) [3].

There is a classification of body weight according to the BMI of the International Group on Obesity (IOFT):

insufficient body weight is <18.8.

the normal mass range is observed at a BMI of 18.5 to 24.9.

overweight ranges from 25.0 to 29.9.

The I degree of obesity occupies the range from 30.0 to 34.9;

II degree of obesity corresponds to 35.0–39.9.

The III degree of obesity is >40.0 [4].

Medical and social features of clinical groups: 1 group includes 20 women, of which the average age is 25 years. Their all women are married, 15 are working, 2 are students. The cure of average body weight during pregnancy is 15 kg.

The 2nd clinical group includes 20 women with an average age of 30 years. All women are married, 18 are working. The average weight during pregnancy increased by 13 kg.

The 3rd clinical group consists of 20 women, their average age is 32 years. All women are married, 17 are working. The average weight gain during pregnancy was 11 kg.

Results.

The study identified the following prevalent complications: In the first clinical group, 13 women were at risk of preterm birth, comprising 65% of the total group, with 14 cases accounting for 70% of women in the second group, and 14 women in the third clinical group, making up 70% of the total.The occurrence of delivery via caesarean section was 10 cases in the first clinical group, 13 cases in the second group, and 16 cases in the third clinical group. Thus, the highest frequency of this complication was found in the third clinical group, representing 80% of the total number of women, and the higher the degree of obesity, the higher the incidence of caesarean sections. Premature rupture of the membranes was observed in 8 women in the first clinical group, in 11 cases in the second group, and in 13 clinical cases in the third group, reflecting the clinical status associated with the level of obesity.

Maternal obesity is associated with increased insulin resistance throughout pregnancy compared to normal-weight women, resulting in increased placenta-mediated glucose transport to the fetus. In addition, increased insulin resistance in obese women increases the risk of gestational diabetes, which alters glucocorticoid-mediated times vitriol of the fetal lungs at the end of pregnancy and inhibits the maturation of surfactant, which increases the risk of developing RDS at birth. Maternal obesity is associated with increased insulin resistance during normal pregnancy in women who carry glucose across the placenta. In addition, insulin resistance in obese women increases the risk of developing gestational diabetes, which alters fetal lung development with glucocorticoid at the end of pregnancy and reduces the maturity of surfactants [6]. The study identified 5 cases of gestational diabetes mellitus, which is 8% of the total number of women studied.

Obesity can affect the placental transport of fatty acids, which leads to an increase in the driving force of diffusion through the placenta, impaired development of the placenta, as well as a change in the

surface area for exchange. This leads to an increase in the penetration of lipids through the placenta, resulting in dyslipidemia and fat accumulation in the fetus [6].

It is known that the pathology of the subsequent and early postpartum periods in overweight women is bleeding, which occurs in 6-30% of women, which is 2-5 times higher than in women with normal body weight [5]. In the study groups, this pathology was not detected. The postpartum period in obese women in childbirth is often accompanied by complications of an infectious and non-infectious nature. Thus, endometritis develops in 2.6-17% of cases, subinvolution of the uterus - in 35%, lochometritis - in 12-14%, thrombophlebitis - in 8-21.5%; in general, various postpartum complications in obese women are noted in 47-53% of cases [3]. When analyzing the study group, postpartum endometritis was detected in 4 cases, which is 6% of the total number of examined. This seems to be due to the timely prevention of postpartum purulent-septic complications, by prescribing antibiotic therapy [4].

Findings

According to the findings, the total number of complications during pregnancy and childbirth in obese women is higher than in women with normal body weight. All women were divided into 3 clinical groups according to the degree of obesity. In the course of the studies, it was revealed that complications such as the threat of premature birth, premature rupture of the membranes are more common in women from the 3rd clinical group, that is, BMI>40.0. The frequency of delivery by cesarean section was 10 cases in the 1st clinical group, 13 cases in the 2nd group, 16 cases were noted in the 3rd clinical group, thereby proving that the greater the BMI, the higher the frequency of cesarean section. When assessing the condition of newborns, it was revealed that the higher the degree of obesity of a pregnant woman, the lower the Apgar scores in newborns. Thus, a straightforward correlation between complications of pregnancy and childbirth and the degree of obesity is revealed.

Prophylaxis

Despite the presence of many complications, obesity is not a contraindication to pregnancy. In preparation for conception, a woman needs to conduct pregravid training not only with an obstetrician-gynecologist, but also with an endocrinologist. According to WHO, the optimal BMI should be from 18 to 24.9 kg/ m2. A BMI of 25 to 29.9 is considered as overweight, from 30 - as obesity. Training of such patients in the "School for Obese Patients" is recommended. Thus, a pregnant woman can get information about the gestational risks due to obesity, the adverse effect on the fetus of somatic diseases. In the periconceptional period, it is important to direct measures to reduce body weight: diet therapy, optimal physical activity regimen, correction of endocrine disorders and drug therapy for obesity [1].

During pregnancy, a woman should be guided by certain rules: carrying a pregnancy should be accompanied by strict control of the total body weight and gain during pregnancy, which should not exceed 5-6 kg. Compliance with proper nutrition: in order to reduce the excitability of the food center, frequent meals (6-8 times a day) are recommended. Food should be low-calorie, but at the same time occupy a large volume in the stomach, which helps to eliminate the feeling of hunger [6]. Snacks such as crackers, dried fruit and yoghurts are recommended. From the diet of a pregnant woman, it is necessary to exclude taste substances that help increase the excitability of the food center and enhance appetite. The protein content in the diet of a pregnant woman should be 20% of the daily diet, the proportion of fats is about 30%, and carbohydrates - 50%. The energy value of the diet should be on average 2500 kcal per day. It is important to understand that a pregnant woman cannot starve, as this can lead to the development of ketonemia. Pregnant women are advised to keep a schedule of the results of systematic weighing [5].

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