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**ТИББИЁТДА ЯНГИ КУН
НОВЫЙ ДЕНЬ В МЕДИЦИНЕ
NEW DAY IN MEDICINE**

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OBESITY AND PREGNANCY

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✓ Resume

The aim of the study was to determine how obesity affects the likelihood of complications during pregnancy.

Materials and methods: The study included 125 women with a diagnosis of obesity before pregnancy. The control group consisted of 80 women with a normal body mass index (BMI) before pregnancy. To analyze the contribution of each factor, the odds ratio (OR) and 95% confidence interval (95% CI) were calculated. For statistical data processing, the MedCalc software package designed for biomedical research was used.

Results: The results showed that obese women are significantly more likely to have pregnancy complications compared to women with a normal BMI. It was found that excess weight negatively affects the course of pregnancy, increasing the incidence of complications both in its early stages and in the second half. In obese women, the risk of threatened miscarriage increases by 2.6 times, hypertensive disorders - by 3.1 times, intrauterine growth retardation - by 6.8 times, polyhydramnios - by 7 times, anemia - by 1.6 times, urinary tract infections - by 2.2 times.

Conclusio: Thus, excess body weight significantly increases the risk of developing pathological conditions during pregnancy and childbirth, which is confirmed by the data of the analysis.

Key words: pregnancy, childbirth, obesity, complications, termination, risk

ОЖИРЕНИЕ И БЕРЕМЕННОСТЬ

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✓ Резюме

Целью исследования было определить, как ожирение влияет на вероятность осложнений во время беременности.

Материалы и методы: В исследование были включены 125 женщин с диагнозом ожирение до беременности. Контрольную группу составили 80 женщин с нормальным индексом массы тела (ИМТ) до беременности. Для анализа влияния каждого фактора были рассчитаны отношение шансов (ОШ) и 95% доверительный интервал (95% ДИ). Для статистической обработки данных использовался программный комплекс MedCalc, предназначенный для биомедицинских исследований.

Результаты: Результаты показали, что женщины, страдающие ожирением, значительно чаще сталкиваются с осложнениями беременности по сравнению с женщинами с нормальным ИМТ. Было установлено, что избыточный вес негативно влияет на течение беременности, увеличивая частоту осложнений как на ранних ее сроках, так и во второй половине.

У женщин с ожирением риск угрозы выкидыша возрастает в 2,6 раза, гипертонических расстройств - в 3,1 раза, задержки внутриутробного развития - в 6,8 раза, многоводия - в 7 раз, анемии - в 1,6 раза, инфекций мочевыводящих путей - в 2,2 раза.

Заключение: Таким образом, избыточная масса тела значительно повышает риск развития патологических состояний во время беременности и родов, что подтверждается данными проведенного анализа

Ключевые слова: беременность, роды, ожирение, осложнения, прерывание, риск

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✓ Rezyume

Tadqiqotning maqsadi semirish homiladorlik paytida asoratlar ehtimoliga qanday ta'sir qilishini aniqlash edi.

Materiallar va usullar: tadqiqotda homiladorlikdan oldin semirish tashxisi qo'yilgan 125 ayol ishtirok etdi. Nazorat guruhi homiladorlikdan oldin normal tana massasi indeksiga (BMI) ega bo'lgan 80 ayoldan iborat edi. Har bir omilning hissasini tahlil qilish uchun koeffitsientlar nisbati (yoki) va 95% ishonch oralig'i (95% CI) hisoblab chiqilgan. Statistik ma'lumotlarni qayta ishlash uchun biomedikal tadqiqotlar uchun mo'ljallangan MedCalc dasturiy ta'minot to'plami ishlatilgan.

Natijalar: natijalar shuni ko'rsatdiki, semiz ayollarda BMI normal bo'lgan ayollarga qaraganda homiladorlik asoratlari sezilarli darajada yuqori. Aniqlanishicha, ortiqcha vazn homiladorlikning kechishiga salbiy ta'sir qiladi, uning dastlabki bosqichlarida ham, ikkinchi yarmida ham asoratlar sonini oshiradi.

Semiz ayollarda homilador bo'lish xavfi 2,6 barobar, gipertenziv kasalliklar - 3,1 barobar, intrauterin o'sishning kechikishi - 6,8 barobar, polihidramnnoz - 7 barobar, anemiya - 1,6 barobar, siydik yo'llari infeksiyalari - 2,2 barobar ortadi.marta.

Xulosa: shunday qilib, ortiqcha tana vazni homiladorlik va tug'ish paytida patologik holatlarning rivojlanish xavfini sezilarli darajada oshiradi, bu tahlil ma'lumotlari bilan tasdiqlangan

Kalit so'zlar: homiladorlik, tug'ish, semirish, asoratlar, tugatish, xavf

Relevance

Today, female obesity is considered one of the most common risk factors in obstetrics. According to statistics, gestation complications occur in 45–85% of cases in overweight women. Excess weight has a negative impact on the functioning of many organs and systems, contributes to the development of extragenital diseases and reduces the body's immune defense. It increases the risk of pregnancy and childbirth disorders, complications in the postpartum period, and also negatively affects the health of the newborn, increasing perinatal morbidity and mortality. Obese women are more likely to experience hypertensive disorders, placental insufficiency, gestational diabetes and anemia [1,2,3,4,5,6,7,8,9].

The aim of the study: was to determine how obesity affects the likelihood of complications during pregnancy.

Materials and methods

The main group included 125 women with obesity diagnosed before pregnancy. The control group included 80 women whose body mass index (BMI) before pregnancy was normal. The average age of patients in the main group was 29.0±0.44 years, and in the control group — 25.7±0.47 years.

Supplement: Obesity was diagnosed based on BMI calculation using the formula: weight (kg) divided by height squared (m²). Inclusion criteria for the main group: BMI above 25 kg/m², full-term and singleton pregnancy. The control group included women with BMI from 18.5 to 25 kg/m².

To determine the independent influence of factors on the probability of complications, the odds ratio (OR) with a 95% confidence interval was calculated. The calculation was carried out using the formula: $OR = (A \times B) / (B \times C)$, where A and B are the presence of a feature, C and B are its absence, respectively, in women with obesity and in the control group. An OR value of more than 1 was interpreted as a significant risk. The data were analyzed using the MedCalc program. The results were assessed using descriptive statistics methods and statistical hypothesis testing. The Student t-test was used to compare parameters with a normal distribution, and the Mann–Whitney test was used in case of deviation from normality. Data with a normal distribution are presented as the mean value and standard

error ($M \pm m$). Contingency tables, Fisher's exact test, and χ^2 -test were used to assess qualitative features. Differences were considered significant at $p < 0.05$.

Outcomes of previous pregnancies

In obese women, the obstetric history included induced abortion in 32% of cases. Physiological delivery was performed in 71 (88.8%) patients, cesarean section was performed in 9 (11.3%), medical termination was performed in 8 (10.0%), and spontaneous miscarriage in the first trimester was performed in 14 (17.5%).

Outcome	Women with obesity (n=125) / %	Control group (n=80) / %	χ^2 / p
Physiological delivery	25 - (20.0%)	71 - (88.8%)	92.598 / <0.001
Surgical delivery	100 - (80.0%)	9 - (11.3%)	2.598 / <0.001
Induced abortion	40 - (32.0%)	8 - 0.0%	13.166 / <0.001
Spontaneous miscarriage	16 - (12.8%)	14 - (17.5%)	0.863 / >0.05
Preterm delivery	14 - (11.2%)	—	9.617 / =0.002
Anomalies of labor	11 - (8.8%)	—	7.439 / =0.007
Postpartum complications	9 - (7.2%)	—	6.024 / =0.015

*Note: * — differences are statistically significant by χ^2 .

Results and discussions

Analysis of the history and course of pregnancy showed that among women in the main group, 3.2% were under 20 years old, 53.6% were aged 20 to 29 years, 30.4% were aged 30 to 34 years, and 12.8% were aged 35 to 39 years. In the control group, the corresponding figures were 3.8%, 80.0%, 11.3%, and 5.0%. It is noteworthy that there were significantly more women aged 30–34 in the main group than in the control group ($p < 0.05$).

84% of obese women had a family history of obesity, which was not observed in the control group. Unhealthy diet was observed in 48% of obese patients (compared to 3.8% in the control group), 12.8% consumed stimulating drinks ($p < 0.05$). Low physical activity was noted by 91.2% of obese women versus 10.0% in the control group ($p < 0.05$). Living conditions were satisfactory and did not differ between the groups.

Among obese women, 9.6% began to gain weight in childhood, 53.6% during puberty, and 36.8% during or after pregnancy. The age at which weight gain began was distributed as follows: 12–16 years — 20%, 20–24 years — 19.2%, 24–28 years — 24%, 29–38 years — 18.4%.

Analysis of the gynecological anamnesis showed that the frequency of inflammatory diseases (ophoritis) among obese women was 19.1% compared to 15.6% in the control group. Cervical erosion was diagnosed in 13.2% of patients in the main group and in 7.1% in the control group. Endometritis occurred in 13.7% versus 6.3%, respectively ($p < 0.05$). Infertility in the main group was noted in 17.6% (22 women), with primary in 8% and secondary in 9.6%. No cases of infertility were recorded in the control group. Results and discussion (continued)

In women of the control group, 25 (20%) deliveries were physiological ($\chi^2=92.598$; $p < 0.001$). In obese patients, 80% of cases (100 women) underwent operative delivery, mainly for the following indications: weak labor, hypertensive complications, breech presentation, and the presence of a uterine scar. Premature births occurred in 11.2% ($\chi^2=9.617$; $p=0.002$), labor dysfunctions — in 8.8% ($\chi^2=7.439$; $p=0.007$), and postpartum complications — in 7.2% ($\chi^2=6.024$; $p=0.015$). No significant difference in the frequency of spontaneous miscarriages was found between the groups (12.8% versus 17.5%, $p > 0.05$).

Analysis of complications in different periods of pregnancy showed that in the first half, the most common were the threat of miscarriage (20%) and early hypertensive manifestations (16.8%). In the control group, similar indicators were 7.5% ($p < 0.05$). In the second half of pregnancy, the most common were anemia (32%), the threat of premature birth (27.2%) and hypertensive conditions (25.6%). For comparison, in the control group, these complications occurred in 22.5%, 12.5% and 10% of women, respectively ($p < 0.05$).

Odds ratio and interpretation

The data obtained indicate a significant increase in the risk of complications in obese women. In the first half of pregnancy, the risk of hypertensive disorders was estimated as $RR=2.5 \pm 0.48$ (95% CI: 0.95–6.47; $p < 0.05$), in the second — $RR=3.1 \pm 0.42$ (95% CI: 1.34–7.12; $p < 0.01$), which is 2.5–3.1 times higher than in the control group.

Similarly, when assessing the risk of miscarriage: in the first half of pregnancy — $RR=3.1 \pm 0.48$ (95% CI: 1.20–7.90; $p < 0.01$), in the second — $RR=2.6 \pm 0.39$ (95% CI: 1.21–5.65; $p < 0.01$). This means that the

probability of threatened miscarriage in obese women increased by 2.6–3.1 times compared to the control group.

Analysis of the risks of complicated pregnancy in obese women.

The analysis showed that the probability of developing anemia in obese women in the second half of pregnancy was lower compared to the first: the relative risk was $OR = 1.6 \pm 0.32$ (95% confidence interval: 0.85–3.09; $p < 0.05$) versus $OR = 3.0 \pm 0.79$ (95% CI: 0.63–14.38; $p < 0.01$). This is probably due to the increase in the incidence of anemia in both the main and control groups as pregnancy progressed.

It was also found that in obese women, the risk of developing lower urinary tract infections more than doubles by the end of pregnancy and was $OR = 2.2 \pm 0.67$ (95% CI: 0.59–8.37; $p < 0.05$).

The risk of polyhydramnios in obese pregnant women was seven times higher than in women from the control group: $OR = 7.0 \pm 0.75$ (95% CI: 1.58–30.89; $p < 0.001$).

In addition, the probability of intrauterine growth retardation of the fetus in overweight women increases more than six times compared to the control group: $OR = 6.8 \pm 1.05$ (95% CI: 0.86–54.74; $p < 0.001$).

Conclusion

Obesity has a pronounced negative impact on the course of pregnancy and the process of delivery. The results of our study confirm that obesity contributes to an increase in the incidence of obstetric and perinatal complications, both in the early stages and in later periods of gestation.

With increasing gestational age, the risk of the following complications increases in obese women:

- threat of termination - by 2.6 times;
- hypertensive conditions — 3.1 times;
- intrauterine growth retardation — 6.8 times;
- polyhydramnios — 7 times;
- anemic syndrome — 1.6 times;
- urinary tract infections — 2.2 times.

These data indicate a high level of obstetric risks in obese patients. In this regard, they should be considered a high-risk group for complications during pregnancy, childbirth and the postpartum period. Management of such patients requires careful medical supervision and an individual approach.

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