



New Day in Medicine
Новый День в Медицине

NDM



TIBBIYOTDA YANGI KUN

Ilmiy referativ, marifiy-ma'naviy jurnal



AVICENNA-MED.UZ



ISSN 2181-712X.
EiSSN 2181-2187

11 (73) 2024

Сопредседатели редакционной коллегии:

**Ш. Ж. ТЕШАЕВ,
А. Ш. РЕВИШВИЛИ**

Ред. коллегия:

М.И. АБДУЛЛАЕВ
А.А. АБДУМАЖИДОВ
Р.Б. АБДУЛЛАЕВ
Л.М. АБДУЛЛАЕВА
А.Ш. АБДУМАЖИДОВ
М.А. АБДУЛЛАЕВА
Х.А. АБДУМАЖИДОВ
Б.З. АБДУСАМАТОВ
М.М. АКБАРОВ
Х.А. АКИЛОВ
М.М. АЛИЕВ
С.Ж. АМИНОВ
Ш.Э. АМОНОВ
Ш.М. АХМЕДОВ
Ю.М. АХМЕДОВ
С.М. АХМЕДОВА
Т.А. АСКАРОВ
М.А. АРТИКОВА
Ж.Б. БЕКНАЗАРОВ (главный редактор)
Е.А. БЕРДИЕВ
Б.Т. БУЗРУКОВ
Р.К. ДАДАБАЕВА
М.Н. ДАМИНОВА
К.А. ДЕХКОНОВ
Э.С. ДЖУМАБАЕВ
А.А. ДЖАЛИЛОВ
Н.Н. ЗОЛотова
А.Ш. ИНОЯТОВ
С. ИНДАМИНОВ
А.И. ИСКАНДАРОВ
А.С. ИЛЬЯСОВ
Э.Э. КОБИЛОВ
А.М. МАННАНОВ
Д.М. МУСАЕВА
Т.С. МУСАЕВ
М.Р. МИРЗОЕВА
Ф.Г. НАЗИРОВ
Н.А. НУРАЛИЕВА
Ф.С. ОРИПОВ
Б.Т. РАХИМОВ
Х.А. РАСУЛОВ
Ш.И. РУЗИЕВ
С.А. РУЗИБОВЕВ
С.А.ГАФФОРОВ
С.Т. ШАТМАНОВ (Кыргызстан)
Ж.Б. САТТАРОВ
Б.Б. САФОВЕВ (отв. редактор)
И.А. САТИВАЛДИЕВА
Ш.Т. САЛИМОВ
Д.И. ТУКСАНОВА
М.М. ТАДЖИЕВ
А.Ж. ХАМРАЕВ
Д.А. ХАСАНОВА
А.М. ШАМСИЕВ
А.К. ШАДМАНОВ
Н.Ж. ЭРМАТОВ
Б.Б. ЕРГАШЕВ
Н.Ш. ЕРГАШЕВ
И.Р. ЮЛДАШЕВ
Д.Х. ЮЛДАШЕВА
А.С. ЮСУПОВ
Ш.Ш. ЯРИКУЛОВ
М.Ш. ХАКИМОВ
Д.О. ИВАНОВ (Россия)
К.А. ЕГЕЗАРЯН (Россия)
DONG JINCHENG (Китай)
КУЗАКОВ В.Е. (Россия)
Я. МЕЙЕРНИК (Словакия)
В.А. МИТИШ (Россия)
В.И. ПРИМАКОВ (Беларусь)
О.В. ПЕШИКОВ (Россия)
А.А. ПОТАПОВ (Россия)
А.А. ТЕПЛОВ (Россия)
Т.Ш. ШАРМАНОВ (Казахстан)
А.А. ЩЕГОЛОВ (Россия)
С.Н. ГУСЕЙНОВА (Азербайджан)
Prof. Dr. KURBANHAN MUSLUMOV (Azerbaijan)
Prof. Dr. DENIZ UYAK (Germany)

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

*Илмий-рефератив, маънавий-маърифий журнал
Научно-реферативный,
духовно-просветительский журнал*

УЧРЕДИТЕЛИ:

**БУХАРСКИЙ ГОСУДАРСТВЕННЫЙ
МЕДИЦИНСКИЙ ИНСТИТУТ
ООО «ТИББИЁТДА ЯНГИ КУН»**

Национальный медицинский
исследовательский центр хирургии имени
А.В. Вишневского является генеральным
научно-практическим
консультантом редакции

Журнал был включен в список журнальных
изданий, рецензируемых Высшей
Аттестационной Комиссией
Республики Узбекистан
(Протокол № 201/03 от 30.12.2013 г.)

РЕДАКЦИОННЫЙ СОВЕТ:

М.М. АБДУРАХМАНОВ (Бухара)
Г.Ж. ЖАРЫЛКАСЫНОВА (Бухара)
А.Ш. ИНОЯТОВ (Ташкент)
Г.А. ИХТИЁРОВА (Бухара)
Ш.И. КАРИМОВ (Ташкент)
У.К. КАЮМОВ (Тошкент)
Ш.И. НАВРУЗОВА (Бухара)
А.А. НОСИРОВ (Ташкент)
А.Р. ОБЛОКУЛОВ (Бухара)
Б.Т. ОДИЛОВА (Ташкент)
Ш.Т. УРАКОВ (Бухара)

11 (73)

2024

ноябрь

www.bsmi.uz

https://newdaymedicine.com E:

ndmuz@mail.ru

Тел: +99890 8061882

Received: 20.10.2024, Accepted: 02.11.2024, Published: 10.11.2024

UDC-616.379-008.64

OVERWEIGHT AND OBESITY IN GESTATIONAL DIABETES, AND THE IMPACT ON PREGNANCY

Tolibova K.O. <https://orcid.org/0009-0003-6567-7602>

Karimova G.K. <https://orcid.org/0000-0003-1931-1127>

Asadova M.M. <https://orcid.org/0009-0002-1034-5363>

Bukhara State Medical Institute named after Abu Ali ibn Sina, Uzbekistan, Bukhara, st. A. Navoi. 1 Tel: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ Resume

When asked by the history taking method, whether close relatives of pregnant women with GDM had inherited diabetes mellitus, where cases of DM were diagnosed (58.2% of pregnant women with a history of GDM, 57.4% of patients with GDM).

When studying the state of somatic diseases of pregnant women in the study groups in pregnant women with GDM and GDM in history, chronic pyelonephritis occurred in 32.8% and 30.9%, thyroid disease 32.8%, 35.3%, obesity -75% and 64.2% in the two groups, respectively.

According to the analysis of blood in the case histories of patients in groups, anemia was observed in an average of 61.45% of patients.

Key words: leptin, C-peptide, pregnant with diabetes, blood glucose, 25(OH)D.

ГЕСТАЦИОН ДИАБЕТДА ОРТИҚЧА ВАЗН ВА СЕМИЗЛИК ВА УНИНГ ХОМИЛАДОРЛИК КЕЧИШИГА ТАЪСИРИ

Толибова К.О. <https://orcid.org/0009-0003-6567-7602>

Каримова Г.К. <https://orcid.org/0000-0003-1931-1127>

Асадова М.М. <https://orcid.org/0009-0002-1034-5363>

Абу али ибн Сино номидаги Бухоро давлат тиббиёт институти Ўзбекистон, Бухоро ш., А.Навоий кўчаси. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ Резюме

Қандли диабетнинг ирсиятида мавжуд ёки мавжуд бўлмаганлиги анамнез йиғиш усули билан сўраб сурштирилганда ГҚД билан касалланган ҳомиладорларнинг яқин қариндошларида ҚД билан касалланиш ҳолати учраган (анамнезида ГҚД бўлган ҳомиладорларда 58,2%, ГҚД билан касалланганларда 57,4%).

Тегиширув гуруҳлардаги ҳомиладорларнинг соматик касалликлар ҳолати ўрганилганда анамнезида ҚД ва ГҚД ҳомиладорларда сурункали пиелонефрит 32,8% ва 30,9% да учради, бўқоқ касаллиги 32,8%, 35,3%, семизлик ГҚД билан касалланганлар 75%, анамнезида ГҚД бўлганларда 64,2% ҳолатлар кузатилди.

Гуруҳлардаги ҳомиладорлар касаллик тарихидаги қон таҳлилига кўра анемияси бор ҳомиладорларда ўртача 61,45 %да кузатилди.

Калит сўзлар: лептин, С-пептид, қандли диабетни бўлган ҳомиладорлар, қондаги глюкоза, 25(OH)D.

ИЗБЫТОЧНЫЙ ВЕС И ОЖИРЕНИЕ ПРИ ГЕСТАЦИОННОМ ДИАБЕТЕ, ВЛИЯНИЕ НА ИСХОД БЕРЕМЕННОСТИ

Толибова К.О. <https://orcid.org/0009-0003-6567-7602>

Каримова Г.К. <https://orcid.org/0000-0003-1931-1127>

Асадова М.М. <https://orcid.org/0009-0002-1034-5363>

Бухарский государственный медицинский институт имени Абу Али ибн Сины, Узбекистан, г. Бухара, ул. А. Навои. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ **Резюме**

Причинами, которые могут привести к развитию миомы матки, являются анемия и кровопотеря вовремя на вопрос методом сбора анамнеза, был ли сахарный диабет в наследстве у близких родственников беременных с ГСД, где были выявлены случаи диагноза СД (58,2% беременных с ГСД в анамнезе, 57,4% пациенток с ГСД).

При изучении состояния соматических заболеваний беременных в исследуемых группах у беременных с ГСД и ГСД в анамнезе хронический пиелонефрит встречался у 32,8% и 30,9%, заболевание щитовидной железы 32,8%, 35,3%, ожирение -75% и 64,2% в двух группах соответственно.

Согласно анализу крови в историях болезни больных в группах в среднем у 61,45% пациенток наблюдалась анемия.

Ключевые слова: лептин, С-пептид, беременные с сахарным диабетом, глюкоза в крови, 25(ОН)Д.

Relevance

Diabetes mellitus has become a global problem among pregnant women around the world, especially during the pandemic, and is one of the pathologies that contribute to a sharp increase in obstetric and perinatal complications and the spread of the disease at a young age.

Gestational diabetes mellitus (GDM) is inextricably linked with metabolic disorders and monitoring of obstetric and perinatal complications. The International Diabetes Federation estimates that the global prevalence of GDM is up to 14%, with one in seven babies affected, including 18 million births with adverse complications such as maternal and fetal death, and will depend on the methods used and environmental factors.

It is also necessary to develop models for effective detection of women with gestational diabetes, timely screening and prevention methods, which are of particular importance in the management of gestational diabetes and help improve health outcomes. GDM is not a cure, but prevention is a priority both in terms of health and economics. In a non-diabetic woman at risk of GDM, even a small decrease in glucose levels can be an important factor for pregnancy and the health of future generations.

Purpose of the study: To study the effects of overweight and obesity in gestational diabetes on pregnancy outcome

Materials and methods

The study included general clinical, biochemical (C-reactive protein, ferritin, D-dimer, APTT, ketone, homocysteine, glucose, creatinine, LDH, LII, PGTT, glycated hemoglobin), hormonal (leptin, C-peptide, 25 (ОН)D , HOMA-IRCP, HOMA-Islet, methods of correlation and statistical research.

The materials of the dissertation work were collected at the Department of Obstetrics and Gynecology of the Medical and Pedagogical Faculty of the Bukhara State Medical Institute (Head of the Department - Doctor of Medical Sciences, Professor G.A. Ikhtiyarova, Rector - Professor Sh.Zh. Teshayev), in the Bukhara City Maternity Complex (Chief Physician - Z.M. Saidova) and the Navoi Regional Perinatal Center (Director - F.B. Gafarov).

To solve the tasks, a statistical analysis of medical data of 135 women was carried out, including 67 women with a history of GDM. For comparison, 68 pregnant women with GDM and 36 women with physiological pregnancy were taken for the study.

The study was conducted in three stages. At the first stage of the study, pregnant women who were overweight, obese, had a history of stillbirth, polyhydramnios, fetal malformations, macrosomia, as well as all the prerequisites for the potential danger of complications during pregnancy, childbirth and the postpartum period, for the life of pregnant women with a history of diabetes mellitus were examined.

The patients were collected during 2017 - 2020 based on a selection of archival materials of birth histories, statistical journals and reports of maternity hospitals of the Bukhara City Maternity Complex and the Navoi Regional Perinatal Center.

At the second stage of the study, 68 women with a pregnancy period of 22-38 weeks, who were diagnosed with GDM from 2018 to 2021, were examined.

The control group consisted of 36 pregnant women with different gestational periods of 22-38 weeks, who underwent clinical, laboratory and instrumental studies. The main focus of our study was to examine the factors causing GDM in women during pregnancy, their anamnestic data, of which the following were taken into account: age, parity, course of the antenatal period during the previous pregnancy, characteristics of childbirth and the postpartum period, gynecological and somatic diseases, menstrual cycle (age of the first menarche, properties of the menstrual cycle and its distortions).

Particular attention was paid to the course of pregnancy (premature birth, intrauterine fetal death, large fetus, polyhydramnios, infectious and colds), various somatic diseases and complications observed during childbirth (complications of childbirth, surgical interventions).

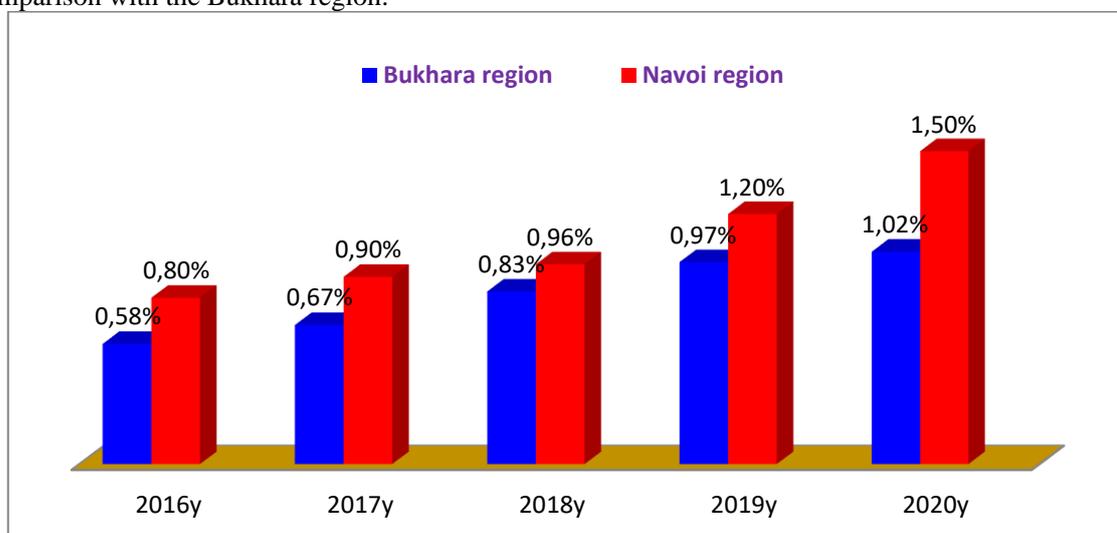
When studying the underlying disease in pregnant women, special attention was paid to their complaints, the history of the underlying disease, preventive measures and correction of carbohydrate metabolism disorders.

Upon completion of the second stage of the study, the importance of the development of GDM in risk groups was studied. The results of the study formed the basis for optimizing the tactics of pregnancy management in GDM. The third stage of the study is optimization of the prevention and early screening algorithm for groups at risk of complications and potential complications with GDM. The interpretation of the obtained results is based on a complete analysis of clinical data, on a detailed description of the examined women.

Results and discussion

Analyzed clinical and anamnestic data and indicators of reproductive health of women with hyperglycemia in the blood. It became known that out of the analyzed data of 68 pregnant women with GDM complications, all of them were diagnosed on the basis of clinical and anamnestic (obesity, large fetus, antenatal fetal death, polyhydramnios, fetal malformation), instrumental and diagnostic data (ultrasound). In pregnant women in Bukhara and Navoi regions in 2016, it was observed in 0.58/0.8% of cases of GDM, in 2017 - in 0.67/0.9% of cases of GDM, in 2018 - in 0.83 /0.96% of GSD cases, in 2019 - in 0.97/1.2% of GDM cases and in 2020 - in 1.02/1.5% of GDM cases (Pic. 1). As can be seen from the figure, the frequency of detection of GDM is more often diagnosed and occurs in the Navoi region in comparison with the Bukhara region.

Analyzed clinical and anamnestic data and indicators of reproductive health of women with hyperglycemia in the blood. It became known that out of the analyzed data of 68 pregnant women with GDM complications, all of them were diagnosed on the basis of clinical and anamnestic (obesity, large fetus, antenatal fetal death, polyhydramnios, fetal malformation), instrumental and diagnostic data (ultrasound). In pregnant women in Bukhara and Navoi regions in 2016, it was observed in 0.58/0.8% of cases of GDM, in 2017 - in 0.67/0.9% of cases of GDM, in 2018 - in 0.83 /0.96% of GSD cases, in 2019 - in 0.97/1.2% of GDM cases and in 2020 - in 1.02/1.5% of GDM cases (Pic. 1). As can be seen from the figure, the frequency of detection of GDM is more often diagnosed and occurs in the Navoi region in comparison with the Bukhara region.



Picture 1. Incidence rate of GDM in Bukhara and Navoi regions (%).

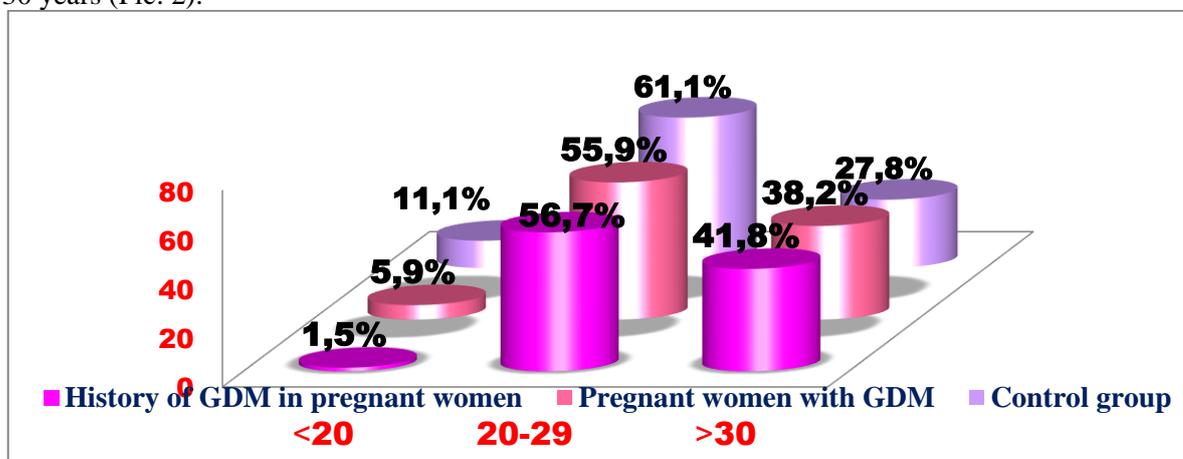
The selection criterion for patients was pregnant women with a high risk of GDM with a gestational age of 22–38 weeks, with various obstetric and somatic complicated anamnesis.

When collecting anamnesis, the place of residence of patients was taken into account, since the annual increase in metabolic diseases directly correlates with a decrease in physical activity. It was revealed that 20 (30.2%) pregnant women with GDM live in the village, and in the control group 28 (77.8%). Pregnant women with GDM living in the city amounted to 48 (69.8%), in the control group - 8 (22.2%).

It can be seen that GDM is relatively high in areas with stress factors such as metabolic diseases and conditions associated with low mobility and modern development.

We also paid special attention to the age status of the patients. As can be seen from Figure 3, the incidence of GDM was higher in pregnant women aged 20–29 years due to gestational age and a higher proportion of pregnant women with a history of GDM (56.7% and 55.9%, respectively).

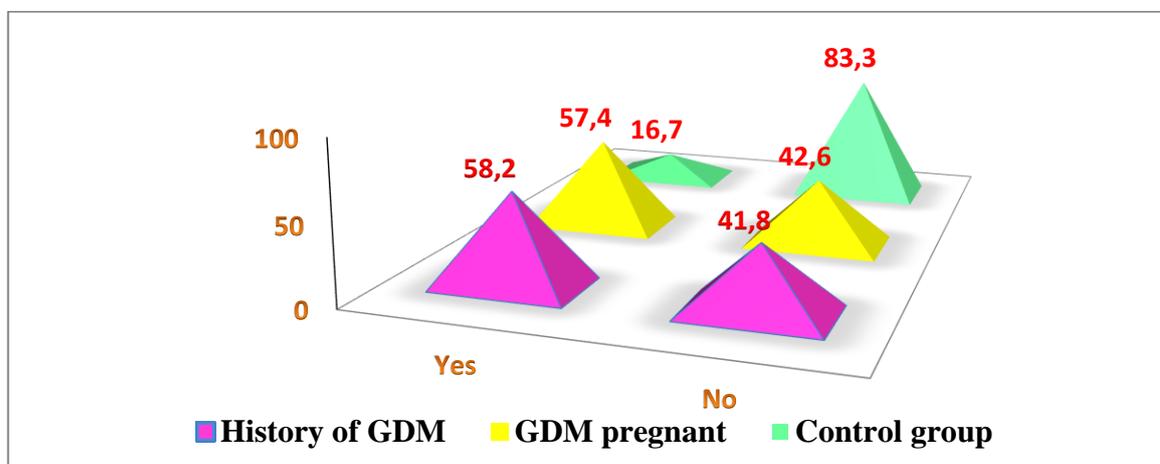
Pregnant women aged 30 years and older accounted for 38.2% of pregnant women with GDM and 41.8% of pregnant women with a history of GDM. For comparison, healthy pregnant women in the control group were 11.1% at the age of 20 years, 61.1% at the age of 20-29 years and 27.8% at the age of 30 years (Pic. 2).



Picture 2 Age indicators of pregnant women (%).

In the control group there were 13 firstborns and 23 second children, respectively 36.1% and 63.9%.

Also, by taking an anamnesis, it was determined whether the pregnant woman had a hereditary DM disease or not. The results of the survey showed that close relatives of pregnant women with a history of GDM accounted for 58.2%, and pregnant women with DM had hereditary GDM disease in 57.4%. In the control group, 16.7% had DM in close relatives.



Picture 3. Patients with hereditary diabetes.

However, in pregnant women with a history of GDM and in women with GDM in this pregnancy in the control group without DM, the rates were 41.8%, 42.6 and 83.3%, respectively (Pic. 3).

Thus, based on the data obtained, the role of the above risk factors (obesity BMI ≥ 30 , overweight index BMI 25-30, heredity, polyhydramnios, complicated obstetric anamnesis, large fetus) in early development in pregnant women with GDM should be noted.

We performed basic routine laboratory tests for pregnant women with GDM and then analyzed them: blood, urinalysis, fasting and loading oral glucose tolerance test (OGTT), glycated hemoglobin index, PTI and coagulogram containing thrombotest, urinalysis for glucose, urea, creatinine.

Particular attention was paid to the study of biochemical analysis of glycated hemoglobin and blood sugar in women who had a history of GDM in previous years (67 pregnant women), 68 pregnant women with GDM (identified during our study) and 36 pregnant women in our control groups.

The purpose of conducting biochemical studies of all fractions of bilirubin, ALT and AST enzymes, total protein, urea and creatinine was to determine the degree of liver and kidney dysfunction, was to determine the characteristic features for GDM in pregnant women.

To identify placental and fetal circulatory disorders associated with the development of complications, we also studied specific analyzes in dynamics, such as homocysteine, leptin, C-peptide, D-dimer and 25 (OH)D. When septic complications occurred, the following indicators were included in the studies as C-reactive protein and procalcitonin.

Of the 68 pregnant women, only 26 received 6 to 10 units of insulin per day on the recommendation of an endocrinologist.

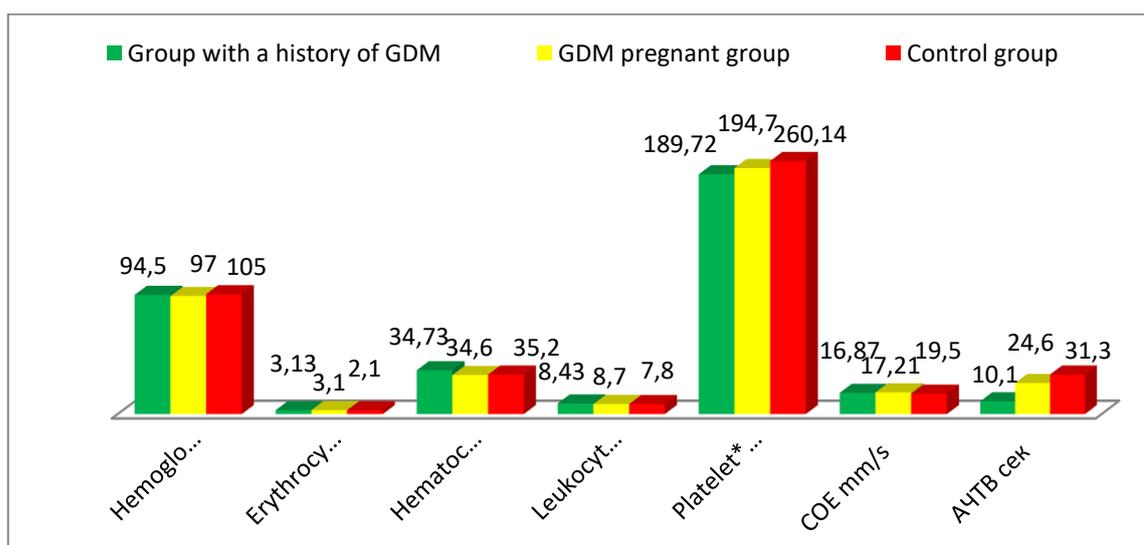
Pregnancy is accompanied by an increase in hematopoiesis, an increase in plasma volume by 2.5-3 times, respectively, with a change in the composition of formed elements and hemoglobin.

The obtained results show that the peripheral blood parameters of pregnant women with a physiological shift (n=36) significantly differ from those of pregnant women with GDM (n=68).

In both groups, both healthy and pregnant women with GDM showed a decrease in the levels of erythrocytes and hemoglobin compared to the reference values.

Compared to the generally accepted norms, erythrocytes decreased by 0.7 and 0.4 (2.8 and 3.1), and hemoglobin in both groups decreased by 15.2 and 7.2 (98 and 113.2 g/l), respectively.

The color index, which reflects the average concentration of hemoglobin (Hb) protein in one erythrocyte, ranged from 0.8 to 1.0 without anemia. A decrease in this indicator was observed in different conditions: with various forms of anemia, for example, iron deficiency, anemia after hemorrhoids, often with chronic diseases of internal organs (Pic. 4).



Picture 4. Results of laboratory blood tests.

In the study of the white part of the blood (leukocytes) in the group of pregnant women with GDM, this indicator was slightly higher than in healthy people (8.7 ± 0.3 ; $7.8 \pm 0.24 \times 10^{12}$).

In our studies, the risk factors for the development of gestational diabetes were: obesity of the 1st degree (43%), 2nd degree (21.5%) and the growth of overweight (12%), women with hereditary

diabetes mellitus (57.4%), the presence a large fetus in history (80.9%), preeclampsia (66.2%), polyhydramnios (35.3%), with a condition after COVID-19, complicated by transient diabetes (14.7%,).

The negative impact of gestational diabetes on both the mother's body and the fetus, with the subsequent development of DF and insulin resistance of the fetus.

In our studies, we compared markers such as (homocysteine, 25 (OH) D, leptin, C-peptide, HbA1c, D-dimer, OGTT, FPTT, C-reactive protein) and determined the degree of correlation between pregnant women with GDM and healthy pregnant women in the control group. As a result, it was found that the correlation between homocysteine (0.76), leptin (0.78), C-peptide (0.81) and OGTT (0.9) in the study had a degree of correct strong correlation.

Table 1

The degree of correlation between laboratory tests.

№	Tests	M±M	P	r	Level of correlation dependence
1.	Homocysteine	42,4±2,3	p<0,001*	0,76	Correct strong
2.	25 (OH) Д	24,6±0,4	p<0,001*	0,65	Correct average
3.	Leptin	16,6±0,3	p<0,001*	0,78	Correct strong
4.	C-peptide	4,9±0,2	p<0,001*	0,81	Correct strong
5.	HbA1c	12,6±0,5	p<0,001*	0,52	Correct average
6.	D-dimer	1796±18,8	p<0,001*	0,52	Correct weak
7.	OGTT (fasting)	10±0,3	p<0,001*	0,9	Correct strong
8.	APTT	30,6±3,6	p<0,005*	0,56	Correct average
9.	C-reactive protein	5,9±0,31	p>0,05*	0,28	Correct weak

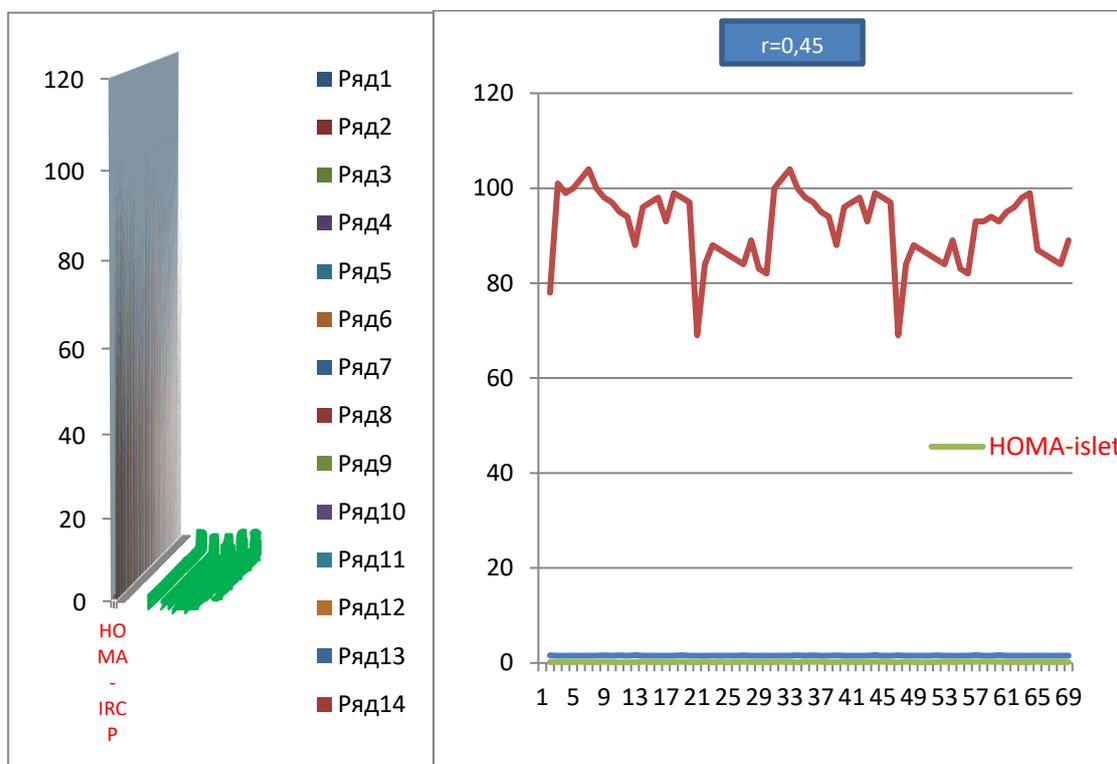
The correct average correlation levels were determined between such laboratory parameters as -25 (OH) D (0.65), HbA1c (0.52), FPTT (0.56). The D-dimer coagulogram indicator has a correct level of weak correlation with such a sepsis marker as CRP (Table 2).

Thus, based on clinical and anamnestic data, laboratory parameters, it was proven that the results of the analysis in early diagnosis and screening of GDM play a major role in predicting the course of pregnancy and the development of possible complications.

Ultrasound examination of gestational diabetes mellitus and pregnant women in the control group is carried out on the basis of the data contained in it to study the levels of correlation dependence using the HOMA-IRCP and HOMA-Islet indices.

HOMA-Islet, which shows the activity of pancreatic β -cells, and the results of the fetometry formula. The fronto-oxypital size changes from week to week. Based on these data, the correlation

dependence of the results of HOMA-IRCP, HOMA-Islet was studied (Fig. 11). The size of the abdominal circumference is an indicator of fetal fetometry in the womb, indicates the presence of a large fetus, macrosomia, and the presence of a direct strong (0.72) correlation between them was revealed when the correlation series was constructed with HOMA-IRCP, the presence of a direct average (0.45) correlation dependence between HOMA-Islet and abdominal circumference.



Picture. 5 Measurement of abdominal circumference in the fetus and the degree of correlation between the HOMA-IRCP and HOMA-Islet indices.

Thus, in a group of women with a history of GDM, with the development of GDM, using diagnostic methods of correlation research, an algorithm for conducting pregnancy in women with GDM was developed based on a computer program.

Conclusions

1. In our studies, the risk factors for the development of gestational diabetes were: obesity of the 1st degree (43%), 2nd degree (21.5%) and overweight (12%), women with hereditary diabetes mellitus (57.4%), the presence of a large fetus history (80.9%), preeclampsia (66.2%), polyhydramnios (35.3%), with a condition after COVID-19, complicated by transient diabetes (14.7%).

2. The negative impact of gestational diabetes on both the mother's body and the fetus, with the subsequent development of DF and insulin resistance of the fetus. They were reflected in the following indicators: an increase in the level of glycated hemoglobin (HbA1c) by 2–2.3 times, insulin resistance of hormonal indicators to C-peptide by 92.4%, homocysteine (a marker of folate status) by 12% and an increase in the predictor of metabolic leptins on average 65% ($p < 0.001$) of the LDH level, LII by 10% relative to the reference values.

3. To prevent complications in the mother and fetus, based on clinical and laboratory data and predictors of the development of gestational diabetes mellitus (C-peptide, leptin, an increase in BMI up to 450 mg up to 20 weeks, 1.5 times more than normal pregnancy) indicates a complicated course of GDM and Insulin dose adjustment should be immediately introduced together with an endocrinologist; in order to prevent maternal and perinatal complications, an algorithm based on a computer program has been optimized.

LIST OF REFERENCES:

1. Ikhtiyarova G.A., Tosheva I.I., Narzulloeva N.S. (2017). Causes of fetal loss syndrome at different gestation times. //Asian Journal of Research, 20117;3(3).
2. Ikhtiyarova G.A., Tosheva I.I., Aslonova M.J., Dustova N.K. (2020). Prenatal rupture of amnion membranes as A risk of development of obstetrics pathologies. //European Journal of Molecular and Clinical Medicine, 2020;7(7):530-535.
3. Isroilovna T.I. (2022). Labor and Perinatal Outcomes in Women with Preterm Rupture of Membranes and with Chorioamnionitis. //International journal of health systems and medical sciences, 2022;1(4):297-305.
4. Isroilovna T.I. (2022). Preterm Rupture of Membranes, As a Factor in the Development of Obstetrics Complications. //International journal of health systems and medical sciences, 2022;1(4):336-343.
5. Isroilovna T.I. (2023). Risk Factors for the Development of Obstetric Pathologies in Women with Outflow of Amniotic Fluid. //Eurasian Medical Research Periodical, 2023;20:237-242.
6. Mavlyanova N.N., Ixtiyarova G.I., Tosheva I.I., Aslonova M.Z., Narzullaeva N.S. (2020). The State of the Cytokine Status in Pregnant Women with Fetal Growth Retardation. //J Med-Clin Res Rev, 2020;4(6):1-4.
7. Ихтиярова Г.А., Каримова Г.К., Наврузова Н.О., Хайруллаев Ч.К. (2019). Ультразвуковая диагностика диабетической фетопатии у беременных с метаболическим синдромом на фоне сахарного диабета. //Тиббиёт ва спорт, 2019;(3-4):56-58.
8. Karimova G.K., Ikhtiyarova G.A., Muminova N.K. (2021). Early biochemical markers and screening diagnosis of Gestational diabetes mellitus and its prevention during pandemic period. //Journal of Natural Remedies, 2021;22(1):17-26.
9. Sh I. A., Ikhtiyarova G.A., Musaeva D.M., Karimova G.K. (2020). Assessment of the status of pregnant women with diabetes mellitus infected with COVID-19. New day in medicine 2020;2(30).
10. Каримова Г.К. (2022). Гестацион қандли диабетни эрта таъхислашнинг биокимёвий скрининги. //Barqarorlik va yetakchi tadqiqotlar onlayn ilmiy jurnali, 2022;2(8):199-212.
11. Каримова Г.К., Наврузова Н.О., Нуриллоева Ш.Н. (2020). Индивидуальный подход к ведению гестационного диабета. //Европейский журнал молекулярной и клинической медицины, 2020;7(2):6284-6291.
12. Каримова Г.К., Ихтиярова Г.А., Муминова Н.К. (2021). Ранние биохимические маркеры и скрининг-диагностика гестационного сахарного диабета, и его профилактика в период пандемии. //Журнал природных средств правовой защиты, 2021;22(1):1.
13. Каримова Г.К., Каримова Г.К. (2023). Лаборатор-Инструментальные Показатели Беременных С Гестационным Диабетом. //Amaliy va tibbiyot fanlari ilmiy jurnali, 2023;2(10):1-8.
14. Каримова Г.К. (2022). Гестацион Қандли Диабетда Ҳомиладорлик Ва Туғрукни Олиб Бориш. Amaliy va tibbiyot fanlari ilmiy jurnali, 2022;1(6):180-192.
15. Komilovna G.K. (2023). Clinical and Anamnestic, Laboratory and Instrumental Indicators of Pregnant Women with Gestational Diabetes. //Central Asian Journal of Medical and Natural Science, 2023;4(5):390-398.
16. Каримова Г.К., Ихтиярова Г.А. (2021). Популяции и ранние предикторы гестационного сахарного диабета в период пандемии. //Журнал теоретической и клинической медицины, 2021;(6-1):77-80.

Entered 20.10.2024