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Endocrine System and Diabetes
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ISSN: 2836-502X RESEARCH ARTICLE

The Results of Pregnancy and childbirth In Women with Gestational Diabetes Mellitus

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Received Date: 05 January 2023; **Accepted Date:** 13 January 2023; **Published date:** 24 January 2023

Citation: Karimova G.K., Tosheva I.I., (2023). The Results of Pregnancy and childbirth In Women with Gestational Diabetes Mellitus. Journal of Endocrine System and Diabetes. 2(1). DOI: 10.58489/2836-502X/004

Abstract

Selection of an effective method of delivery for mother and child in pregnant women with gestational diabetes. Selecting the optimal method of delivery by studying the outcome of labor for the mother and fetus in women with gestational diabetes. The retrospective group included 67 women who passed through the regional perinatal center, city maternity complex and family clinics No. 5, No. 6 of the city of Bukhara in the periods from 2016 to 2018. The main (prospect) group consisted of 68 women whose pregnancy proceeded against the background of overt or gestational diabetes mellitus (GDM). The control group consisted of 31 women whose pregnancy proceeded physiologically. As a result of the study, the course of pregnancy and childbirth according to the history of childbirth and own observations revealed that in all (60%) pregnant women with GDM, pregnancy and childbirth proceeded with any complications, like in the mother and the fetus. Thus, pregnancy proceeded against the background of corrected diabetes with the use of the optimal insulin regimen and rational diet therapy, the absence of signs of diabetic fetopathy, then in this category of pregnant women, the delivery through the birth canal is considered the best option.

Keywords: *gestational diabetes mellitus, carbohydrate metabolism, delivery, preeclampsia*

Introduction And Methodology

The problem of pregnancy and childbirth with gestational diabetes mellitus (GDM) is very relevant and is still not completely resolved. This is due to an increase in the number of pregnant women with this pathology, associated with a sharp increase in the incidence of diabetes in the population, as well as an improvement in the quality of diagnosis. The prevalence of all forms of diabetes mellitus among pregnant women reaches from 3.5% to 7.6%. Perinatal mortality in pregnancy complicated by diabetes mellitus of any type is 30-50%. After 3 months after giving birth, 4 out of 100 women with gestational diabetes develop a typical clinical picture of type 2 diabetes mellitus, after 1 year in 32% and after 8 years in 46% [14,17].

According to large-scale epidemiological studies, GDM is diagnosed in approximately 4% of pregnant Caucasian races. The prevalence of GDM can vary from 1 to 14% (an average of 7%), which depends on the analyzed population of women and the frequency of use of the oral glucose tolerance test (OGTT) used to diagnose the disease. The prevalence and incidence of GDM in Uzbekistan is not known, since epidemiological studies in accordance with international standards for studying this problem have not been conducted. A screening and diagnostic program for GDS is also poorly organized. Moreover, according to WHO in the EU countries and the USA in 2009, 230,000 cases of GDM were recorded [2,8,11].

In most patients, gestational diabetes occurs with unexpressed, rare, and lack of clinical symptoms. These women tend to be older of reproductive age (35-49 years old) and they have found a bowl obesity [3,16].

According to some authors, obesity is one of the key risk factors for the development of GDM.

It is believed that during gestational diabetes, reduced insulin sensitivity is present before conception and even more decreases with pregnancy progresses. This is due to a decrease in the first

phase of the insulin response and impaired suppression of glucose production by the liver, which develops at the end of pregnancy. A consequence of insulin resistance and decreased insulin secretion is an increase in plasma concentrations of glucose, free fatty acids, certain amino acids and ketones. Each of these substances, in turn, is comparable with the body weight of the newborn and, in some cases, with an unfavorable outcome of pregnancy [11].

Distinctive features of pregnant women after the use of assisted reproductive technologies (ART) are age-related risk (more than 70% of patients over 30 years old); high incidence of multiple pregnancies; gynecological diseases and surgical intervention in the anamnesis; the presence of somatic pathology, hypertension of hypertension and hormonal disorders: obesity, polycystic ovary syndrome (PCOS). These pathological conditions significantly increase the risk of obstetric and perinatal complications [9 ,12].

The most significant risk factors for GDM according to data (T. Kovalenko 2007) are: age over 30 years (55.4%), obesity (49.2%), family history of diabetes burdened by diabetes (46.6%), glucosuria (43%) and fasting hyperglycemia (52%). It has been established that the presence of 2 or more factors increases the risk of GDM by 10 times or more.

The high frequency of multiple pregnancies with GDM may be caused by almost double the concentration, and consequently, the double pin and rinsulyarnym action placental hormone, cortisol, etc. due to the functioning of several placentas [5,15].

The occurrence in pregnant women with gestational diabetes is facilitated by the high sensitivity of the fetus in the antenatal period to the action of any endogenous and exogenous damaging factors. F actor's risk of developing GDM in modern obstetric diabetology can be divided into 2 groups [10,17].

According to the results of Gafurov M.R. (2014) the gestational age at which GDM was detected ranged from 21 to 34 weeks. An individual diet was selected for the patients, which was effective in 16 (57.1%), while 12 (42.9%) pregnant women were supplemented with insulin therapy. All patients performed glycemic self-control and kept a food diary. In addition to GDM, the course of pregnancy was complicated by preeclampsia in 4 (14.3%) women, in one case in the form of severe hepatosis , and in 50% of patients with the threat of abortion. Fetoplacental insufficiency (FPF) was observed in 4 (14.3%) patients with a single pregnancy and in all cases of multiple pregnancy [7,13].

During caesarean section glycemic control is carried out before the operation, before removing the fetus, after the separation of the placenta, then every 2 hours while achieving target levels and hourly, with a tendency to the development of hypo - or hyperglycemia prior to the resumption I self enteral pi Tania [2,10,14]. Women who are on childbirth on diet therapy in the perioperative period, insulin is not administered. In in infusion of solutions containing glucose and lactate should be avoided .

Women on insulin therapy in the perioperative period, short-acting insulin is administered intravenously using an infusomat. Intravenous infusion of the glucose- potassium mixture begins only with a continuing tendency to the development of hypoglycemia against the background of an already reduced rate of insulin infusion or its stop. After separation of the placenta, insulin infusion stops. Target glycemic levels in whole capillary blood in the intraoperative period 4.0-6.0 mmol/L, in the postoperative period: on an empty stomach, before meals, at bedtime 4.0-6.0 mmol/L, 2 hours after eating 6, 0-7.8 mmol /l, at night (at 3:00 o'clock) at least 5.5 mmol / l [1,14].

Women who are at a constant subcutaneous infusion of insulin via insulin pump, during delivery of insulin administration is continued with the standard basal rate. After separation of the placenta, the infusion rate is reduced by 2 times and the intravenous infusion of the glucose-potassium mixture begins, complete cancellation of insulin is possible [4,10,16].

Women with GDM are at risk for developing type 2 diabetes after childbirth, therefore, they should be observed in the future prevention program for this disease. Regardless of the results of post-partum OGTT, all women are recommended lifestyle changes, maintaining normal body weight through diet and physical activity. Whenever possible, it is necessary to avoid the use of drugs that enhance insulin resistance (for example, glucocorticoids). In women with a history of GDM, low-dose estrogen-progestogen oral contraceptives may be used if there are no medical contraindications. Children of mothers with GDM should be observed for the development of obesity or impaired glucose tolerance [6 ,15].

Thus, the organization and implementation of a universal program for screening and diagnosis of GDS, management of pregnancy and childbirth will improve pregnancy outcomes for both mother and future offspring and can be the basis for the prevention of type 2 diabetes in the future in this category of women and their children. Timely diagnosis and rational management of pregnancy in

women with GDM, the use of medical methods and diet therapy can reduce the risk of complications during pregnancy and contribute to the birth of healthy children.

Purpose of the study

Selection of the optimal method rodor Permitted by the study outcome childbirth for mother and fetus in women with gestational diabetes.

Material and methods

In the retrospective group included 67 women who passed through the regional perinatal center and number 5, number 6 family polyclinics of the city of Bukhara in the periods from 2016 to 2018 years. The main group consisted of 67 women whose pregnancy proceeded against the background of obvious or gestational diabetes. The control group consisted of 31 women whose pregnancy proceeded physiologically.

The work was performed on the basis of the Department of Obstetrics and Gynecology of the Medical institute and maternity hospitals in Bukhara. Gathering a diagnostic history through a survey, we specified the following data.

Questioning method

Clinical examination, including the determination of hemodynamic laboratory parameters, subjective and objective examination methods;

Study of capillary blood glucose;

Studying the condition of the placenta and the fetus;

Ultrasound examination (placenta, fetus, kidney and liver, and, if necessary, other organs);

Questionnaire- questioning method studied:

- The presence of background extragenital diseases;

- The beginning and formation of menstrual function, the nature of the menstrual cycle, the beginning of sexual activity;

- The number of pregnancies, childbirth, abortion, intergenetic interval, the presence of a birth or after an abortion injury, inflammation, long-term spotting after an abortion;

- Labor and living conditions surrounding the pregnant woman, stress factors;

- Obstetric complications during pregnancy (early and late toxicosis, obesity, the threat of termination of pregnancy);

- Somatic pathology suffered during a real pregnancy, including acute respiratory infections;

- The presence of bad habits, like smoking, the use of alcohol and drugs;

- Carrying out preventive examinations and the conclusion of narrow specialists during pregnancy (therapist, endocrinologist, etc.).

Clinical diagnostic methods for women in the prospective group included: questioning 68 pregnant women and assessing the risk of developing GDH, consulting an endocrinologist, measuring blood pressure, body weight, calculating body mass index (BMI) using the Kettle formula: BMI = body weight before pregnancy, kg / (growth, m) 2, general clinical tests of blood and urine, taking into account risk factors for the development of GDM. Ultrasound of the uterus, fetus in dynamics, glycated hemoglobin level, glucose tolerance test (TT to G) and other BMI>25 kg / m2, presence of relatives of the 1st line of relationship with GDM or other history of carbohydrate metabolism, glycosuria during this pregnancy, age, women over 30 years, the birth of a child weighing more than 4000 g or a history of stillbirth, birth of children with congenital malformations in the history of habitual miscarriage pregnancy, a history of polyhydramnios, abnormal weight gain during this b belt. Below are data on the age category of women in the examined groups.

Results and Discussion

Some pregnancy complications, being characteristic, are not only for GDM, which are more often observed in women with this disease. When studying the course of pregnancy and childbirth according to the history of childbirth and own observations, it was found that in all (100%) pregnant women with GDM, pregnancy and childbirth proceeded with any complications. And in most cases, several complications were observed in combination, both in the mother and in the fetus. Hypertensive pathologies joined every second woman in a retrospective group.

PE and a violation of the functional state of the fetus are indications for delivery of pregnant women with GDM by cesarean section surgery. As can be seen from our data, pre-eclampsia was noted in the retrospective group 56.7%, in the main group 75.4%, in the control group 18.3 % against the background of previous vascular changes. Almost every second pregnant woman developed urinary tract infections: in the retrospective group 31.3%, in the main group 47.4%, in the control group 27.3 %, which indicates a rather widespread prevalence of this pathology. Premature rupture of the membranes in women of the retrospective group was observed in 41, 8% of cases, in the main group in 54.4%, in the control group of 81, 8% of cases.

Premature and prenatal rupture of membranes at different stage of pregnancy (27-39 weeks) of pregnancy complicated in the retrospective group at 41,8% (28 women), almost every second (54, 4, 31% of women) of the main group and one woman from the control group (9% of cases).

In 34.3 % of women, childbirth ended prematurely. This is due to layered preeclampsia, against which, for health reasons and in the interests of the mother and the fetus, the cons ilium decided to terminate the delivery ahead of schedule. At the same time, 41% of delivery was performed by cesarean section.

Pregnancy was complicated by polyhydramnios in 21 cases in the main group, which amounted to 31%, 14 (24%) cases in the retrospective group, which was caused by infections of various nature. Basically, this complication was observed in women who underwent ARI during pregnancy.

In the control group, polyhydramnios was observed in 1 cases (9%), which was confirmed by clinical signs and ultrasound data. Observing the postpartum period in groups of women with GDM revealed that in 13 women (22.8% of cases) this period was complicated by early bleeding, which may have a mixed etiology (atonic and coagulopathy origin), postpartum hemorrhage is more often observed, which may be associated with overstretching uterus with polyhydramnios and large fetal size. Basically, bleeding was observed in the first 2 hours after separation and separation of the placenta and with a newborn's body weight of more than 4000 grams during prolonged labor. Macrosomia with a fetal weight of more than 4,500 grams, as you know, is the result of an excess supply of glucose to the fetus through the uteroplacental system.

Fig 1: Macrosomic and normal baby

In our cases, macrosomia occurred in 56% of cases in the main group and in 27.3% of cases in the control group (Table number 1).

Table 1: Obstetric complications of gestational diabetes

№	Obstetric complications of GDM	Retrospective abs n = 67%		MainAbs n =68%		Control abs n = 11%	
1	*Preeclampsia (PE).*	*67*	*100*	*37*	*65.4*	*0*	*0*
2	*Urinary tract infections.*	*21*	*31.3*	*27*	*47.4*	*1*	*9*
3	*Premature rupture of the membranes*	*28*	*41.8*	*31*	*54.4*	*9*	*81.8*
4	*Macrosomia of the fetus.*	*67*	*100*	*32*	*56*	*2*	*18*
5	*Cesarean section*	*40*	*60*	*23*	*41*	*3*	*27.3*
6	*Polyhydramnios and infection.*	*21*	*31*	*14*	*24*	*1*	*9*
7	*Postpartum hemorrhage.*	*15*	*22*	*13*	*22.8*	*1*	*9*

As you know, in newborns from mothers with diabetes, the risk of developing congenital anomalies increases by3 times compared with 1-2% of the basic risk for all newborns. Most often, heart defects and abnormalities in the development of limbs occur. A typical, but rather rare anomaly is agenesis of the sacrum.

Complications of the postpartum period

The method of delivery and the course after in the comparative aspect are also studied. When studying thehistory of childbirth in women in a retrospective group, itwas revealed that mainly delivery methods were operational. A caesarean section in this group of patients was performed in 68.6% of cases, childbirth flowed through the natural birth canal. A high percentage of operative births indicate that the pregnancy in these women occurred against the background of uncorrectedhyperglycemia, therefore, with complications from the mother and fetus, which ultimately were indications for abdominal delivery (table number1).

In 76.2% of these cases, operation is performed as indicated by pelvic -Head imbalances due macrosomia and wrong insertion of the fetal head

Table 2: Postpartum Complications

No	Signs	Retrospective group, n =67				Prospective group, n = 68							
						Main				Control group			
		Caesarean section n =46		*Per vias natu ralis n = 21*		*Per viasn aturalisn=39*		*Caesarean section n =23*		*Perviasnatur alisn = 16*		*Cesarea N section = 15*	
		abs	%	abs	%	abs	%	Abs	%	Abs	%	abs	%
1	*Blood loss<500 ml> 500ml*	*21*	*45.6*	*17*	*81*	*30*	*33.3*	*23*	*100*	*2*	*9*	*0*	*0*
		25	*54. 3*	*4*	*19*	*26*	*66.7*	*3*	*10.3*	*8*	*42.3*	*5*	*33*
2	*subinvolutio nuterus*	*5*	*10.87*	*11*	*52.3*	*7*	*18*	*21*	*72.4*	*2*	*1.75*	*1*	*9*
3	*Lochiometry*	*3*	*6.5*	*9*	*42.9*	*5*	*12.8*	*16*	*55.2*	*0*	*0*	*0*	*0*
4	*Hematometry*	*2*	*4.34*	*2*	*9.52*	*2*	*5.12*	*5*	*17.24*	*0*	*0*	*0*	*0*
5	*Suture infiltration*	*1*	*2.2*	*19*	*90.5*	*3*	*7.7*	*23*	*79.3*	*0*	*0*	*2*	*14*
6	*Ligation of two pairs of vessels*	*0*	*0*	*10*	*47.6*	*0*	*0*	*30*	*44.8*	*0*	*0*	*4*	*28*
7	*Amputation of the uterus*	*0*	*0*	*5*	*23.8*	*0*	*0*	*8*	*27.6*	*0*	*0*	*0*	*0*
8	*Extirpation of the uterus*	*0*	*0*	*4*	*19*	*0*	*0*	*2*	*6.9*	*0*	*0*	*0*	*0*
9	*Maternal mortality*	*0*	*0*	*1*	*4.8*	*0*	*0*	*1*	*3.45*	*1*	*6.15*	*0*	*0*
10	*Bunk day above 5 days*	*4*	*8.7*	*15*	*71.4*	*0*	*20.3*	*27*	*93.1*	*2*	*16.7*	*2*	*16.7*

In almost all cases, childbirth was complicated by various complications. These were mainly: bleeding in excess of 500 ml during childbirth per vias naturalis and more than 1000 ml during cesarean section. Hemorrhage, bearing atopic and coagoulopatic character followed by 81% operational and 45.6% conservative. Given the high risk, two pairs of vessels were ligated (a. Ovaria propriety et a. Rotundum uteri). In 9 women, by examination, the operations were expanded to amputation of the uterus (5-23.8%) and extirpation (4-19%) of the uterus.

Maternal mortality was registered in 1 case, which amounted to 4.8%. the postpartum and postoperative period was also accompanied by complications, especially in women who underwent caesarean section (52.3%). These women have been observed sub involution uterus, accompanied lohiometrey and hematoma. In all likelihood, this was due to inhibition of the contractile ability of the uterus due to prolonged overstretching of its muscles and the phenomena of septic complications.

In the prospective group, 23 women had a cesarean section, they accounted for 34%. It was possible to reduce the operative birth mainly due to rational diet therapy and the choice of optimal individual insulin therapy.

Conclusions

Thus, and learn the birth outcomes, monitor the progress of post-natal and post-operative period, revealed that pregnancy in 65.4% of women with GDM complicated by hypertensive disorders. In almost every third (31.6%) pregnant women, polyhydramnios of varying degrees joined. Delivery in (41%) cases ended with cesarean section, 45.6% of them were complicated by bleeding. Every second case from the retrospective and every 4 case from the prospective group was complicated by suture infiltration (50.5% and 25.3%, respectively).

The optimal delivery route is selected taking into account the condition of the fetus and the level of TSH and glycated hemoglobin. If pregnancy proceeded against the background of corrected diabetes with the use of the optimal insulin regimen and rational diet therapy, the absence of signs of diabetic fetopathy, then in this category of pregnant women, the delivery through the birth canal is considered the best option. The issue of delivery time is decided individually, taking into account the degree of compensation for diabetes mellitus, cervical maturity, condition and size of the fetus.

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