

Modern Approaches to Perinatal Disease in Diabetes in Pregnant Women

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Abstract According to the US National Institute on Maternal and Child Health, diabetes accounts for about 4% of pregnancies that result in live births. Diabetes is one of the most common diseases in the age of civilization. At present, its prevalence among the population has reached the level of epidemic diseases, reaching 1-8.6%. According to statistical studies, the doubling of the number of people with diabetes every 10-15 years has made this pathology one of the most pressing problems in the medical and social spheres.

Keywords Pregnancy, Immaturity, Diabetes, Diabetic embryophetopathy, Diabetic fetopathy, Embryonapanopathy, Respiratory distress syndrome, Hyperglycemia, Fibroplast

1. Introduction

Disorders of carbohydrate metabolism, which cause pathological changes in the fetus and newborn during pregnancy, are divided into two main groups: 1) Pre-pregnancy type 1-2 diabetes. 2) Pregnancy diabetes mellitus or individual diabetes mellitus, which in some women is characterized by hyperglycemia that occurs during pregnancy and usually disappears spontaneously after childbirth [11].

2. The Main Results and Findings

Gestational diabetes is characterized by the following risk factors: obesity, susceptibility to skin and urinary tract infections, birth of overweight children, pathological conditions of previous pregnancies, the presence of birth defects and perinatal death. Among all endocrine diseases, diabetes negatively affects the development of pregnancy and causes complications, adversely affecting the internal development of the fetus and the ability of the newborn to adapt. According to the U.S. National Institute on Maternal and Child Health, diabetes accounts for about 4 percent of pregnancies that result in live births. Of these, 80% were for women with gestational diabetes, 8% for type 2 diabetes and 4% for type 1 diabetes. Between 50,000 and 150,000 children are born with diabetes mellitus. Diabetes mellitus is more common in Asian, Indian and Central Asian women [1,2].

About 75-85% of pre-diabetic women experience various complications of pregnancy. If the mother has type 1 diabetes, diabetic embryopathopathy is present in 75% of newborns [9].

Fetopathy occurs in 25% of fetuses of mothers with gestational diabetes. The prevalence of diabetic fetopathy in boys and girls is approximately the same. The incidence of isolated defects is 6-8%, which is 2-3 times higher than the children of non-diabetic mothers. Despite the prevalence of highly purified insulin types, the methods of monitoring carbohydrate metabolism, the use of genetically engineered insulin, and the establishment of obstetric departments specializing in the prevention of perinatal death in diabetes are at the high level. 95 per mille for gestational diabetes, and early neonatal mortality was 3-4 times higher than the corresponding figure for the general population.

Diabetic mbriofetopathy is a clinical-laboratory complex, which includes a set of specific phenotypic appearances and malformations in children of mothers with diabetes mellitus. common name. Diabetic fetopathy is manifested during pregnancy by a set of phenotypic symptoms that develop in the uterus of the fetus. These changes occur under the influence of hormonal stimuli (insulin deficiency, increased adrenal function, changes in thyroid function) and metabolism (hyperglycemia, hypoproteinemia) [3].

The phenotype includes at least 14 symptoms of diabetic fetopathy that occur at different frequencies and in different combinations. The most common symptoms are hepatomegaly, moon-shaped z, short neck, overweight, like soft tissue pastes.

Women with diabetes give birth to overweight children (weighing more than 4500 g, length 55-60 cm) due to excessive proliferation of adipose tissue. In addition, the

more severe the condition in children from birth to the day after birth, the more pronounced the symptoms of diabetic fetopathy. In young children with uterine growth retardation syndrome and microsomes, general pastosis, hepatomegaly, cervical and short hypertrichosis predominate. However, hypertrophy of some organs (cancer, adrenal glands, liver, kidneys) may be associated with a decrease in the mass of others (brain and thymus gland). Mbfetopathy is one of the most common causes of death among newborns whose mothers have diabetes. It has a greater effect on the central nervous system, cancer, water retention, gastrointestinal tract and urinary tract. The cause of the defect is hypoxic damage to the tissues of the yolk sac at the first important period of pregnancy (4-6 weeks) due to hyperglycemia. The greatest risk is observed in the neural tubes (9 times faster than in normal pregnancy) and cancer (5 times faster). Congenital malformations occur 2-4 times more often than during normal pregnancy. Non-life-threatening defects occur in 2.6% of cases, accounting for 40% of perinatal deaths. Risk factors for their occurrence in type 1 diabetes include poor control of diabetes before pregnancy, the duration of the disease is more than 10 years, vascular damage. In this case, miscarriage occurs in 15–31% of women aged 20–27 years and older during pregnancy [13].

If the amount of glycosylated hemoglobin in the first 3 months of pregnancy exceeds 12% and the level of glucose in the blood of a person on an empty stomach exceeds 6.7 mmol / l, the risk of unintended abortion is reduced. It is assumed that normalization of plasma glucose and glycosylated hemoglobin in the prenatal and mid-pregnancy stages reduces the risk of fetal malformations. Hypoglycemia during pregnancy and hyperglycemia are different in the treatment of the fetus. 20 ha qin negetatic ostr cells cannot respond to hyperglycemia. An embryo with hyperglycemia does not control it and may stop growing. An embryo with hyperglycemia loses control and may stop growing. Hypoglycemia is accompanied by death of the embryo and leads to swelling of the cells, which leads to their serious damage [5,14].

In the second trimester (after 20 weeks), along with hyperglycemia, the fetus responds with beta-cell hyperplasia and increased insulin levels. This leads to the growth of α cells (increased protein production, lipogenesis). Synthesis of somatomedins in hyperglycemia of the liver, spleen and fibroblasts (growth factors - insulin-like growth factor 1 and protein insulin) A similar growth factor is increased by 3 ha), which leads to the formation of macrosomes under conditions of increased amino acids and fatty acids in the blood. Under conditions of hypoglycemia, the production of glucocorticoids and glucagon increased. When hyperglycemia and hypoglycemia change frequently, hypercortisolism develops along with hyperinsulinism. Chronic fetal hyperglycemia and hyperinsulinemia increase the basic metabolic rhythm and increase tissue oxygen consumption, which leads to the development of hypoxic state. Chronic maternal hyperglycemia and hyperinsulinemia increase the basic metabolic rhythm and increase tissue oxygen

consumption, which leads to the development of hypoxic state. In response to the need for oxygen, the fetus responds by increasing the production of erythropoietin and accelerating the release of extra red blood cells due to the activation of erythropoietin. presumably, this may be the cause of polycythemia. In this case, in order to form a large number of red blood cells, there is a redistribution of iron in the tissues of the fetus, the separation of brain tissue and cancer muscles, which can later lead to their serious injury. Thus, the accumulation of fatty acids, triglycerides, ketones in the mother's blood and their entry into the fetal blood, the breakdown of carbohydrates leads to an increase in fetal insulinemia, hyperfunction of its adrenal glands. Hypoglycemia and hyperglycemia, ketoacidosis adversely affect the fetus [4,5].

The second critical period of pregnancy, the placental period, is associated with diabetes, as well as a number of specific conditions that are often the result of maternal vascular complications. Placental angiopathy leads to increased hypoxia, impaired fetal trophism, in which case children with uterine developmental syndrome are often born. The condition of the maternal-placental-fetal complex depends on the type and condition of diabetes mellitus (compensation for impaired carbohydrate metabolism), the presence of complications of diabetes exacerbated by pregnancy complications (gestosis, etc.). Disorders are manifested by hormonal and enzymatic changes [12,15].

Due to arterial and venous sclerotic and trophic changes in the uterus, it is impossible to reconstruct the endo- and myometric segments of the uterine arteries on the basis of a complete pregnancy. There are no conditions for the implementation of the first and second waves of cytotrophoblast invasion, which provide the necessary conditions for the development of primary placental insufficiency and gestosis. Functional disorders of the placental complex are caused by morphological changes in the placenta. The degree of severity and severity of uterine bleeding in the uterine arteries was determined by the ratio of carcinogens to Apgars [6,7,8].

In addition, a decrease in the body's synthetic functions as a result of insufficient insulin in the blood and the production of plasma coagulation cyanides, heparin, as well as the activity of antithrombin III. The increase in cyanotic potential is manifested by the appearance of intravascular edema syndrome, which leads to thrombotic complications, the development and worsening of circulatory failure, as well as fetal miscarriage. Against the background of diabetes mellitus, especially in the second trimester of pregnancy, the development and growth of the fetus is characterized by a special pattern, which begins in the 24th to 26th week of pregnancy. The first is characterized by delayed fetal development and is due to the premature birth of a small child with diabetic fetopathy. The second clinical picture develops from 26-28 weeks of gestation.

Diabetes mellitus of pregnancy is characterized by the birth of unborn uninjured anthropometric indicators. In the third case, which begins at 26 weeks of gestation, the fetal anthropometric population is characterized by a significant

increase in the norm.

Pregnancy macroscopy and diabetic fetopathy are associated with the birth of preterm infants. Delayed development of the uterus in the second and third trimesters of pregnancy and fetal death in the presence of diabetic microangiopathy are directly related to hypoxia and fetal placental insufficiency due to hypoxia and acidosis. Macrosomal pathogenesis has not been studied, possibly due to the accumulation of excess fat in the butyroid and the enlargement of the abdomen. The head of the fetus remains within normal limits. When the fetus is enlarged (due to hyperglycemia), x-ray centers of hematopoiesis develop. Tissue hydrophilicity is accompanied by swelling of the peritoneal wall and limbs. In cancer, cardiomegaly changes occur. During fetal hypoglycemia, maternal hyperglycemia and hypoglycemia, changes in hormonal status slow the growth of the fetus. Macrosomes make it difficult for the fetus to grow through the birth canal, which can lead to birth defects and even the death of the fetus. The slowing down of uterine development is less pronounced than the fall of the fetus and the chromosome [14].

The most common complication of pregnancy in the background of diabetes mellitus is polyhydramnios, which occurs in 20-60% of women. Polyhydramnios plays a role in the pathogenesis of fetal poliuria and it's amniotics in response to an increase in the amount of gl cocoon in the skin. Typically, in 29% of patients with polyhydramnios at 36-38 weeks of gestation, fetal death is observed, due to mechanical pressure of the amniotic fluid on the placenta, which is associated with cytoplasmic anoxia. Children born to mothers with diabetes often suffer from respiratory failure syndrome, because against the background of hyperinsulinemia, the synthesis of extracellular substances in the lungs is broken down. It is the most important cause of pregnancy. Against the background of diabetes, there are significant changes in local and general immunity, which contributes to the development of infectious diseases of the gastrointestinal tract in 16% of pregnant women. Asymptomatic bacteriuria in patients is 2-3 times higher than in the population, in 6% of cases clinically diagnosed pyelonephritis is diagnosed. The speed of birth of a healthy child depends on the correctness of the dental mechanisms that lead to birth defects. Severe cases and late complications of diabetes mellitus, polyhydramnios, gestosis and urogenital infections are the main causes of preterm birth in pregnant women. Their frequency depends on the type of diabetes and ranges from 25 to 60%. The rate of premature births in patients with type 1 diabetes is 60%, and only 23% of women develop independent births. In about 20% of cases, the process of childbirth is carried out immediately in the process of acute development of polyhydramnios and critical conditions of the fetus [10].

The most common complication of birth in patients with diabetes mellitus is amniotic thrombosis with a frequency of up to 40%, which is due to the presence of urogenital infection in the foci and changes in the amniotic membranes. Serious metabolic diseases, as a result of disruption of the

tissue moxibustion system, are observed in 30% of cases during childbirth. The large size of the fetus, the violation of the proportion of the head between the size and width of the shoulders of the fetus, the weakness of the movement causes difficulties in the formation of the shoulder girdle, and in 13% of cases the cause of fetal dystonia.

Babies born to mothers with diabetes need special care, just like premature babies, despite the fact that they are overweight. From the first hours of life it is necessary to identify and fight against respiratory disorders, hypoglycemia, acidosis and central nervous system disorders.

About 50% of preterm infants with rheumatoid arthritis have dysglucosemia syndrome. From the first hours of life, attention should be paid to the diagnosis and treatment of respiratory disorders, hypoglycemia, acidosis and damage to the central nervous system. Dysglucosemia syndrome is observed in 50% of preterm infants with rheumatoid arthritis. The manifestation of this syndrome in the form of hyperglycemia depends mainly on the severity and compensation of the mother's disease, the presence of complications of pregnancy (gestosis) and childbirth (injury), the nature of postpartum neonatal disorders. In children with diabetic fetopathy, the process of rheumatoid arthritis is more difficult, the development of jaundice, toxic rhythms, and the state of the fetus and preterm infants with diabetes have been studied in detail. Carbohydrates, water-electrolytes, neurotransmitters, which determine the course of the neonatal period.

Respiratory and renal malformations of the fetus and newborn are described. However, the state of children's health in later life has not been studied in the scientific literature. We have found only a few studies on this category of children. Further research will allow doctors to evaluate the results of travel in the postpartum period, pregnancy, rheumatoid arthritis. He wished that children born to mothers with diabetes should be referred not only to a local pediatrician, but also to a neurologist (from 1 month), as well as a cardiologist. The child should be monitored not only in the first year of life, but also in later childhood, because in children, the frequency of dental and neurological pathologies is much higher than in others. Periodicity of observation - 3, 6, 9, 12 months, then 1 time per year. Due to the fact that at each stage of a child's life there are special morphological, physiological and psychological features, it is recommended to assess the state of health of children by childhood (infancy, adolescence, preschool, school and adolescence). V.I. According to Krasnopolsky and other authors, the pathology of the central nervous system at different levels is the main disease of infants. [12].

In the first year of life, the central nervous system of poxic or hypoxic-traumatic genesis in all children is observed perinatal damage. This fact is due to the fact that the development of fetoplacental abnormalities during pregnancy is associated with chronic hypoxia of the developing fetus, and there is no doubt that in the case of abnormal birth, the risk of acute hypoxia and fetal harm is

aging. Evaporation also plays a role in the redistribution of iron content and tissue breakdown. Most often (70.2%) children are diagnosed with a syndrome of musculoskeletal disorders, which is manifested by muscular dystonia or hypotension. Impairment of muscle tone is associated with age-related delays in the development of the musculoskeletal system and the formation of musculoskeletal skills (observed in 41.1% of secondary children). Only a quarter of all patients in the early years are under the dynamic supervision of a neurologist, because the parents of children assess their development in a satisfactory way and do not suffer from anything. At the same time, in 78.4% of children there is a violation of the central nervous system, in which the leading syndrome (16.4%) is a delay in the development of neuropsychological development. There is a slightly lower tendency (up to 75%) for preschool children with neurological disorders. The structure of this injury is as follows: in 1/4 of patients there is a neurotic reaction in the form of tics and hyperkinesis, to a lesser extent, 16.6% of children are diagnosed with impaired activity, in 12.5% of cases there is a slow development of psychomotor skills [13].

45.4% of infants have gastrointestinal diseases, most often caused by functional disorders (regurgitation, colitis) and dysbacteriosis. It remains to be seen how much it will remain in the senses and how it will slow down.

Deficiency of certain morphofunctional functions of the fetus during childbirth is the basis for this. Approximately the same frequency of rickets is recorded, which can be explained by a functional deficiency in the background of cortical metabolic rate. The incidence of carcinogenic disorders (cardiopathy, uterine rupture) is explained by hyperglycemia and the direct impact on the development of carcinogenesis in pregnancy. The fourth child was diagnosed with cutaneous dysplasia, and the child was diagnosed with sapopie dermatitis. 34.5% of children suffer from sandy diseases, mainly viral thrush, due to impaired general and local immunity. By the end of the first year of life, 4.8% of children with 1st and 2nd degree obesity are registered. According to subsequent observations, the incidence of cancer is still high, reaching 40.4% of preschool children and 37.5% of preschoolers. In the structure of the disease, autonomic dysfunction syndrome is the first. Children are characterized by an increase in weakness and fatigue (38%), emotional instability (11.1%), chronic headache (16.6%), pigastral pain (27.7%), weather sensitivity (27.7%). 70.1% of patients with chocardiography have mitral valve dysfunction, additional cytopic chords in the left ventricle; 23.6% have saregurgitis with symitral valve prolapse. A similar tendency is gastrointestinal, it is also observed in the assessment of intestinal diseases, which are recorded in 36.1% of preschool children and 50% of preschool students. Adult saprodyskinesia (55.5%) and gastroduodenitis (11.1%) are the most common diseases. In summarizing these data, it should be noted that with age, the nerves of the internal organs and systems become stronger due to the tone of the blood vessels. The increase in the frequency of endocrine pathology with age is especially significant. From the

structure of the disease, malnutrition (varying degrees of obesity) takes the first place (88.8%). In 11.2% of children, the language of acetonemic vomiting is mentioned in the literature.

3. Conclusions

- 1) Gestational diabetes mellitus was a prevalent disease among the population, accounting for 1-8.6%.
- 2) The number of people with diabetes has doubled in the last 10-15 years.
- 3) Pregnancy type 1-2 diabetes mellitus and hyperglycemia during pregnancy, individual diabetes mellitus were identified in disorders of carbohydrate metabolism, causing pathological changes in pregnant women and newborns with diabetes.
- 4) Obesity, predisposition to urinary tract infections, fetal overweight, birth defects were identified as risk factors in pregnancy.
- 5) Phytopathy was detected in the fetuses of 25% of pregnant women with diabetes.
- 6) Diabetic mbriofetopathy and diabetic fetopathy were observed in newborns as pathologists.
- 7) In the first 3 months of pregnancy, glycosylated hemoglobin exceeded 12%, and the risk of unintended abortion was observed in pregnant women with an increase in blood glucose levels of 6-7 mmol / l.
- 8) Against the background of diabetes mellitus, polyhydramnios was observed in 20-60% of pregnant women, fetal polyuria and its amniotic fluid increased gl cocoon, and in pregnant women with polyhydramnios, 29% of fetal deaths were observed at 36-38 weeks of gestation, as well as amniotic fluid. was found to be associated with increased anoxia due to placental function resulting from mechanical pressure of water.
- 9) Monitoring of infants born to pregnant women with diabetes determines not only the medical and social status, but also the condition and quality of life of infants during childbirth. All this requires different approaches in the prophylactic and dispensary control of a group of patients at all stages of the newborn.

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