ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF ARTIFICIAL INTELLIGENCE

ISSN: 2692-515-x, Impact Factor: 9.23

American Academic publishers, volume 6, issue 01,2026

Journal: https://www.academicpublishers.org/journals/index.php/ijai

GESTATIONAL DIABETES MELLITUS: RELEVANCE OF THE PROBLEM

Tukhtaeva Nigina Khayitmurodovna
5th year student
tukhtayevanigina@gmail.com
+998917092040
Burkhonova Anisa Boymurotzoda
Samarkand State Medical University
Faculty of Medicine 5th year student
burxonovaanisa04@gmail.com
+998954642208

Abstract

Gestational diabetes mellitus (GDM) is a disorder of carbohydrate metabolism that is detected during pregnancy, posing a serious threat to the health of the mother and fetus. Since this problem is spreading globally, the development of early diagnosis, prevention and effective management methods is urgent.

Keywords

gestational diabetes mellitus, pregnancy, insulin resistance, perinatal complications, metabolic disorders.

Gestational diabetes mellitus (GDM) is a disorder of glucose tolerance that is detected or develops for the first time during pregnancy and is one of the most important problems of modern obstetrics and endocrinology. In recent years, the increase in obesity, malnutrition and physical inactivity worldwide has led to a significant increase in the incidence of GDM. This condition has a negative impact not only on the health of the pregnant woman, but also on the development of the fetus and the outcome of childbirth.

The pathogenesis of GDM is mainly associated with physiological insulin resistance that occurs during pregnancy and insufficient compensatory capabilities of the pancreas. Undiagnosed or uncontrolled gestational diabetes increases the risk of complications such as preeclampsia, polyhydramnios, operative delivery, as well as macrosomia and neonatal hypoglycemia. Therefore, the relevance of GDM is determined by its high prevalence, severe clinical consequences and long-term metabolic risks. The aim of this article is to highlight the importance of gestational diabetes mellitus, its mechanisms of occurrence and impact on maternal and fetal health.

Gestational diabetes mellitus is a metabolic disorder specific to pregnancy, which is most often detected in the second or third trimester. During normal pregnancy, hormones secreted by the placenta - human placental lactogen, estrogens, progesterone and cortisol - weaken the effect of insulin. This condition is called physiological insulin resistance and is compensated by increased insulin secretion by the pancreas in healthy women. However, in some cases, this mechanism is insufficient, blood glucose levels exceed the norm and GDM develops.

Risk factors are important in the development of gestational diabetes. These include being over 30 years old, being overweight or obese, having a family history of GDM in previous pregnancies, polycystic ovary syndrome, and a sedentary lifestyle. These factors increase insulin resistance and disrupt metabolic balance.[1]

Clinical symptoms of GDM are often not obvious. Therefore, screening tests play an important role in diagnosing the disease. The oral glucose tolerance test is the main method for diagnosing GDM. Early and accurate diagnosis is crucial in preventing complications.

ISSN: 2692-515-x, Impact Factor: 9.23
American Academic publishers, volume 6, issue 01,2026
Journal: https://www.academicpublishers.org/journals/index.php/ijai

The impact of gestational diabetes on the mother's body is multifaceted. This condition increases the risk of preeclampsia, arterial hypertension, and complications during childbirth. In addition, women with GDM are more likely to develop type 2 diabetes in the future. This requires considering gestational diabetes not only as a temporary condition, but also as a risk factor leading to long-term health problems.

The negative effects of GDM on the fetus and newborn can be even more serious. Increased maternal blood glucose levels pass through the placenta to the fetus, increasing insulin secretion in its pancreas. As a result, macrosomia, i.e., an excess of body weight, is observed in the fetus. This increases the likelihood of shoulder dystocia, birth injuries, and operative delivery during childbirth.[2]

After birth, babies may develop hypoglycemia, respiratory failure, and metabolic disorders.

Management of gestational diabetes requires an integrated approach. The basis of treatment is a rational diet, physical activity, and constant monitoring of blood glucose levels. In some cases, insulin therapy is required. Modern approaches have significantly reduced the complications associated with GDM. At the same time, monitoring women in the post-pregnancy period and promoting a healthy lifestyle are important.

In conclusion, gestational diabetes mellitus is an important and urgent problem in modern medicine, characterized by its prevalence and serious complications. Timely diagnosis, effective treatment and preventive measures are crucial for maintaining the health of the mother and child. An integrated approach to GDM not only improves pregnancy outcomes, but also reduces the risk of future metabolic diseases.

References

1. Sweeting A, Wong J, Murphy HR, Ross GP. A Clinical Update on Gestational Diabetes Mellitus. Endocr Rev. 2022 Sep 26;43(5):763-793.
2. Paulo MS, Abdo NM, Bettencourt-Silva R, Al-Rifai RH. Gestational Diabetes Mellitus in Europe: A Systematic Review and Meta-Analysis of Prevalence Studies. Front Endocrinol (Lausanne). 2021;12:691033.