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Original Research Article

Gestational Diabetes Mellitus, its Causes and it's Maternal and Fetal Effect, A Retrospective Study in a Tertiary Care Hospital

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Abstract

Background: various degrees ofabnormalities in glucose tolerance during pregnancy detected for the first time is known as GDM. Global prevalence of GDM is gradually increasing, particularly in developing countries such as India, where GDM has become one of the major chronic diseases endangering women's health. Poor glycemic control during pregnancy not only harms the mother but also the new born.

Methods: A retrospective analysis of pregnant women, specifically those who gave birth in an obstetric ward of Hi-tech medical college and hospital, Bhubaneswar, was performed in this article. A case group and a control group of pregnant women who met the diagnotic criteria for GDM were chosen for a controlled study. From January 1, 2020 to December 31, 2020,1,038 pregnant women were admitted to a tertiary hospital's obstetric ward for delivery and 965 pregnant women who were eventually included in the study. Case and control groups were chosen. The case group consisted of all 125 pregnant women who met the diagnostic criteria for GDM, while the control group consisted of all 840 pregnant women who gave birth at the same time but did not have GDM and met the inclusion criteria. This study used a retrospective analysis method to collect data on the relevant conditions of pregnant women in both case and control groups in order to investigate the risk factors for GDM and pregnancy outcomes.

Results: Out of the 1038 number of pregnant women one hundred twenty-five pregnant women were diagnosed with gestational diabetes and the incidence rate was 12.04%. Comparing the blood glucose levels of pregnant women between the case and control, the average fasting blood glucose level of 75gOGTT was 4.8343±0.4338 mmol/L in the case group and (4.3775±0.3688) mmol/L in the control group. Which is statistically significant.
In this paper we considered the following risk factors: body mass index before pregnancy, age, weight gain during pregnancy, and family history of diabetes, comparison of which is statistically significant. Out of 204, 27 preterm births, with an incidence rate of 13.27%, are including 12 cases in the case group and 15 cases in the control group; 7 cases of premature rupture of membranes, with an incidence rate of 3.43%, including 3 cases in the case group and 4 cases in the control group. Similarly hypertension, preterm delivery, polyhydramneous, IUGR, Macrosomia, PPH, congenital anomally are also studied and found significant.

Conclusion: It is very important to understand the effects of GDM on pregnancy. And the understanding of the risk factors and their impact on pregnancy and it's outcome, strengthen the attention of pregnant women to GDM. Correct guidance and age-appropriate pregnancy are important for the health of mothers and children.

Keywords: GDM, diabetes in pregnancy, glucose challenge test, GHTN, polyhydramneous, IUGR, macrosomia, congenital anomally.

Introduction

GDM is the first occurrence or discovery of various degrees of glucose tolerance abnormalities during pregnancy, with a total incidence ratio ranging from 1% to 14% [1]. Global prevalence of GDM is

increasing year by year as society, the economy, and living standards improve, particularly in developing countries such as China, where GDM has become one of the major chronic diseases endangering women's health. Poor blood sugar control during pregnancy not only harms the mother but also the new born [2]. As a result, the study of GDM has become critical, with obstetricians paying close attention [3]. A new service model is emerging as a result of the Internet and health and medical services [4]. Using mobile phones, QR codes, and the Internet to collect and manage basic information during pregnancy can effectively monitor GDM, reducing GDM complications, according to big data analysis.

Except for type 1 and type 2 diabetes, the World Health Organization (WHO) recognised GDM as an independent type in 1979 [5]. The diversification of diets has resulted in an increase in the prevalence of GDM year after year as economic conditions and life comfort have improved. The clinical course of gestational diabetes is extremely complicated. Insulin-resistant substances such as oestrogen and progesterone increase in pregnant women's bodies during the second and third trimesters of pregnancy, resulting in a decrease in the mother's insulin sensitivity. The blood glucose level determines the influence of GDM on the outcome of pregnancy by maintaining the normal level of glucose metabolism in the body and increasing the function of insulin secretion.

According to the most recent domestic and international studies, GDM is not only associated with the negative outcomes of premature maternal delivery, premature rupture of membranes, hypertension in pregnancy, hyper amniotic fluid, postpartum haemorrhage, and an increased caesarean section rate. It also has an effect on negative outcomes like foetal distress, giant foetuses, and mild asphyxia. [6-10]

With the advancement of medical diagnosis and treatment, paying attention to and strengthening the management of people at high risk of gestational diabetes can reduce the occurrence of adverse pregnancy and child outcomes. Pregnancy counselling and early screening for pregnant women who have risk factors will help to prevent and reduce the occurrence of GDM. Control divided meals, reduce excessive energy intake, increase appropriate exercise, and promote metabolism in people with mild dysglycemia. Insulin therapy can be used to treat people who have poor blood sugar control. GDM pregnant women should have their blood glucose levels checked regularly after childbirth, control their glycogen intake, engage in more aerobic exercise, follow a healthy diet, and raise national health awareness [8, 11-14].

Although there is a wide range of research on GDM, the clinical process is complex. To understand the incidence of GDM and analyse and discuss various risk factors that impact the occurrence of GDM in pregnant women, it is necessary to conduct a statistically significant investigation on pregnant women with the same diagnostic criteria for gestational diabetes in the same period at the same medical institution, which provides a certain theoretical basis for the early prevention, diagnosis, and intervention of clinical GDM, in order to improve the pregnancy outcome.

GDM is defined as any degree of impaired glucose tolerance that occurs or is discovered during pregnancy [15]. In late pregnancy, abnormal glucose metabolism results from increased anti-insulin hormone secretion, insufficient insulin compensatory secretion, or decreased insulin sensitivity, resulting in impaired glucose tolerance during pregnancy (GIGT) or gestational diabetes. The World Health Organization (WHO) classified gestational diabetes into two types: GIGT and GDM in 1998. GIGT is an early blood glucose steady-state change, not an independent type of gestational diabetes [16]. It is simply an intermediate state or transitional stage between normal blood glucose and gestational diabetes. Polydipsia, polyphagia, polyuria, or recurrent vulvovaginal Candida infection symptoms or signs during pregnancy are clinical manifestations of GDM.

GDM blood glucose screening is the most effective method for reducing maternal and infant complications in pregnant women with gestational diabetes, as well as early identification of pregnant women at high risk of type 2 diabetes. In our country, blood glucose screening for pregnant women began in 1984 [17]. It was previously only available to pregnant patients with a history of adverse birth, macrosomia, polyhydramnios, diabetes, a family history of obesity, and polyhydramnios pregnancy. GDM was discovered in 0.05% of people who had a positive urine glucose oral glucose tolerance test (OGTT) [18]. The prevalence of GDM blood sugar screening patients has gradually increased as people's living standards have improved, dietary structure has changed, and diagnostic methods have advanced. In 1996, the prevalence of GDM in our country was 1.75%, and GIGT was 8.39% [19]. According to current epidemiology, the prevalence of GDM in various countries ranges from 1% to 15%. GDM affects 14% of them in the United States, 15% of Indians, and 7.3% of Vietnamese [20]. The prevalence of GDM in the Special Administrative Regions of Beijing, Shanghai, Guangzhou, and Hong Kong is 6.8%, 5.5%, 7.2%, and 8.1%, respectively [21], and it is increasing year after year.

Age is closely related to the incidence of GDM in research on high-risk factors of GDM, and the advanced age of pregnant women is a high-risk factor of GDM. According to the literature [22], pregnant women with BMIs greater than 30 are more likely to develop GDM. According to Li et al. [23], the incidence of obese pregnant women and those with excessive weight gain during pregnancy having large babies, as well as the occurrence of GDM and pregnancy-induced hypertension, is higher than that of normal and low body remodelling, whereas pre-pregnancy BMI and excessive weight gain are associated with new-borns.

The birth weight is related to the outcome of the pregnancy. Diabetes in the family, malignant tumours in the parents, and a pre-pregnancy BMI of more than 26 are all risk factors for GDM. Obese women are at risk of developing GDM before and during the first trimester (within 18 weeks). The literature [24] discovered that the incidence of non-White GDM is high and that race is related to the incidence of GDM.

Clinical evidence indicates that GDM can have a wide range of negative effects on pregnancy outcomes. GDM can result in foetal malformations, stillbirths, macrosomia, and long-term maternal complications. Pregnancy-induced hypertension, hyperhydramnios, premature membrane rupture, surgical delivery, and neonatal diseases are more common in GDM pregnant women and are closely related to blood sugar levels. When compared to age-appropriate GDM pregnant women, older GDM pregnant women have a higher incidence of birth history, pregnancy-induced hypertension, maternal anaemia, and low birth weight infants.

According to the literature [25], 28.3% of patients with GDM have hypertension during pregnancy. There are also significant differences in the rate of caesarean section and forceps use when comparing delivery methods. Some women with GDM will develop diabetes a few years after giving birth (DM). According to the literature [26], 10% of GDM develop type 2 diabetes every year after childbirth, and 50% develop type 2 diabetes within 5 years. According to BellH51, 70% of pregnant women with GDM develop type 2 diabetes.

A retrospective analysis of pregnant women, specifically those who gave birth in an obstetric ward of a tertiary hospital, was performed in this article. A case group and a control group of pregnant women who met the diagnostic criteria for GDM were chosen for a controlled study.

Materials & Methods

From January 1 to December 31, 2020, 1,038 pregnant women were admitted to a tertiary hospital's obstetric ward for delivery. The study excluded five cases of unnatural conception, six cases of twins, four cases of pre-pregnancy hypertension, and two cases of kidney disease. There were 5 cases of cardiovascular disease, 2 cases of liver disease, 2 cases of diabetes, 25 cases of hypothyroidism, 5 cases of nonhospital obstetrics during pregnancy, 6 cases of incomplete data, and 965 pregnant women who were eventually included in the study.

The Purpose of the Study

Case and control groups were chosen. The case group consisted of all 125 pregnant women who met the diagnostic criteria for GDM [27], while the control group consisted of all 836 pregnant women who gave birth at the same time but did not have GDM and met the inclusion criteria.

Inclusion criteria:

1. This was a single pregnancy that was conceived naturally.
2. There was no history of cardiovascular disease, hypertension, liver or kidney disease, diabetes, or similar conditions prior to this pregnancy.
3. They have not used any drugs that interfere with lipid and glucose metabolism (such as phentolamine, cortisone, furosemide, etc.).
4. They had no history of endocrine and related diseases (such as hyperthyroidism, hypothyroidism, Cushing's syndrome, and so on).
5. The pregnancy examination is performed at this hospital.
6. No other diseases have any effect on pregnancy or foetal development.
7. There are no serious infectious diseases to complicate matters.

Exclusion criteria:

1. It is associated with malignant tumours.
2. Important organs are severely dysfunctional.
3. There are some contraindications to using hypoglycemic medications.
4. There are cognitive deficits, mental disorders, and a lack of treatment adherence.
5. The patient has polycystic ovarian syndrome.
6. A delivery is on the way.
7. They have used other hypoglycemic medications on their own.
8. Islet cells lack the ability to secrete insulin.
9. There are complications associated with gestational diabetes mellitus.

Methods of Investigation

This study used a retrospective analysis method to collect data on the relevant conditions of pregnant women in both case and control groups in order to investigate the risk factors for GDM and pregnancy outcomes. The following are the specific statistical indicators:

1. Maternal name, age (years), height (m), blood pressure (mmHg), pre-pregnancy weight (kg), education level, previous medical history, diabetes family history, and pre-pregnancy BMI (BMI). BMI is calculated as weight/height 2 (kg/m2).

2. Pregnancy and childbirth history: dates of pregnancy and childbirth.

3. This pregnancy situation includes the following: Hepatitis B surface antigen carrying status, vaginal Candida test results, first birth weight (kg), OGTT weight (kg), weight within one week before delivery (kg), first fasting blood glucose (FPG)), 75 g glucose tolerance test (OGTT), and pregnancy complications.

4. Childbirth circumstances: delivery methods, complications during childbirth.

5. Placental weight (g), umbilical lead length (cm), new born weight (g), gender, and new born outcome.

Quality Control

The following are the quality control principles:

1. The researcher personally reviews and records all medical records. The researcher has extensive obstetric experience as well as a scientific and rigorous work attitude. He goes over and confirms the doubts that have been raised. If any missing items are discovered, fill them up as soon as possible. Following the completion of all investigations, professionals with extensive obstetric experience will conduct a logical review of all questionnaires and recheck and confirm any suspicious data to ensure the truthfulness and accuracy of the information.

2. Quality Control of Data Processing and Analysis: Prior to data analysis, the data coding and input work was checked for errors, leaks, and logic checks. The repeated entry method is used, and a document verification procedure is established to reduce human error in data entry and ensure data reliability.

Criteria for Diagnosis

The following are the diagnostic criteria used in this article:

1. **Gestational Diabetes:** During 24-28 weeks of gestation, pregnant women undergo 75gOGTT, and their blood glucose levels are 5.1 mmol/L, 10.0 mmol/L, and 8.5 mmol/L, respectively, on an empty stomach and 1 and 2 hours after taking sugar. GDM is diagnosed when the blood glucose level meets or exceeds the above-mentioned thresholds.

2. Premature delivery occurs between weeks 28 and 37 of pregnancy. B-ultrasound before childbirth indicating amniotic fluid dark area 8.0 cm, amniotic fluid index 25.0cm, or total amniotic fluid exceeding 2000ml is the diagnostic criteria for polyhydramnios. Giant foetus: A newborn weighing more than 4000g. A group of diseases known as hypertension in pregnancy coexist with pregnancy and elevated blood pressure. At least two measurements taken from the same arm: systolic blood pressure 140 mmHg and diastolic blood pressure 90 mmHg. Mild asphyxia is defined as a 1 minute Apgar score of 8 points; severe asphyxia is defined as a score of 3 points.

Statistical Evaluation

The data is analysed using SPSS 17.0 software, and the measurement data follows a normal distribution as described by x SD and the t-test. The count data is expressed by the number of cases and percentages. The 2 test is used. When n 40 and all expected values are T 5, the hypothesis test employs the continuity-corrected 2 test; when n 40 or T 1, the Fisher exact probability method is employed. The related risk factors of gestational diabetes were studied using logistic regression analysis, and P 0.05 indicated that the difference was statistically significant.

Results

Out of the 1038 number of pregnant women one hundred twenty-five pregnant women were diagnosed with gestational diabetes and the incidence rate was 12.04%.

Comparing the blood glucose levels of pregnant women between the case and control, the average fasting blood glucose level of 75gOGTT was 4.8343±0.4338 mmol/L in the case group and (4.3775±0.3688) mmol/L in the control group. Statistically the test statistics (t value = 8.103, p value=0.001) which is very less than the standard significant level 0.05; that is, the difference was statistically significant among case and control of Fasting blood glucose.

after 1- hour of the blood glucose value of the case group was (9.5529±0.8618) mmol/L, and the average of the control group was (6.2510±0.8551) mmol/L, Statistically the test statistics (t value = 27.468, p value=0.001) which is very less than the standard significant level 0.05; that is, the difference was statistically significant among case and control of 1-hour Fasting blood glucose.

After 2- hour of the blood glucose value of the case group was (7.7559±0.9564) mmol/L, and the average of the control group was (5.9598±0.7060) mmol/L, Statistically the test statistics (t value = 15.259, p value=0.001) which is very less than the standard significant level 0.05; that is, the difference was statistically significant among case and control of 2-hour Fasting blood glucose.

The difference in statistically significant shown in Table 1

Table 1: Comparison of the blood glucose levels (mmol/L)

Blood Glucose level	Case	Control	T	p value
	Mean ± SD	Mean ± SD		
Fasting blood glucose	4.8343±0.4338	4.3775±0.3688	8.103	0.001
Blood sugar_1 hours	9.5529±0.8618	6.2510±0.8551	27.468	0.001
Blood sugar_2hours	7.7559±0.9564	5.9598±0.7060	15.259	0.001

Table 2: Distribution of Age of Pregnancy

Age of Pregnant	Case	Control	Chi Square	P Value
	Freq (%)	Freq (%)		
20-25	30	40	3.5879	0.3095, Ns
25-30	53	43		
30-35	16	18		
≥ 35	3	1		
Total	102	102		

In this paper we considered the following risk factors: age, body mass index before pregnancy, weight and gain during pregnancy, and family history of diabetes Maternal age was divided into four groups, 70 cases in the 20-25-year-old group, 96 cases in the 25-30 years , 34 cases in the 30-35 years age group, and 4 cases in the ≥35-year-old group, the number of patients in the case group was 30, 53, 16, and 3, and the number of controls was 40, 43, 18, 1 number of cases, the result was tested using the chi square test value of table 2 is 3.5879 with a p value 0.309 which is greater than the standard p value 0.05, so there is sufficient evidence to conclude that there is no significant association between the age of the pregnant of case and control group.

Table 3: Comparison of pregnancy body mass index

		Group		Total		
		Case	Control		Chi Square	P Value
BMI	Under Weight	1	0	1	1.325	0.723
	Normal	30	31	61		
	Overweight	49	52	101		
	Obesity	22	19	41		
Total		102	102	204		

The pregnancy body mass index was 18.0~36.0, with an average of 26.92 ± 3.64 in the case group and an average of 26.96 ± 3.29 in the control group. The pre-pregnancy BMI was divided into Underweight group (1 cases), there is no such cases from control group , Normal weight (30 cases) and 31 cases from control group, Overweight 49 cases but 52 cases from control group, and Obesity 22 cases but from control group 19 cases. From the above table 3 shown the Chi square test value of table 3 is 1.325 with a p value 0.723 which is greater than the standard p value 0.05, so there is sufficient evidence to conclude that there is no significant association between the BMI of the pregnant of case and control group.

Table 4: Comparison of pregnancy weight and weight gain

Weight	Case	Control	t value	p value
WFC	73.52±10.75	72.44±10.08	0.742	0.459
Weight Gain Pregnancy	13.23±2.58	9.55±1.68	12.036	0.001
WBD	83.29±10.64	79.81±8.94	2.53	0.012
Oral Glucose Tolerance test	70.40±10.01	66.31±8.94	3.074	0.002

From the above table 4 shown, Weight at the first check-up (WFC), the weight was 52~97 kg, the average of the case group was 73.52±10.75 kg, the average of the control group was 72.44±10.08 kg, and Statistically the test statistics (t value = 0.742, p value=0.459) which is greater than the standard significant level 0.05; that is, the difference was statistically significant among case and control of WFC. The weight gain during pregnancy was 5.80~19 kg and the average weight gain 13.23±2.58 kg in the case group and 9.55±1.68 kg in the control group and Statistically the test statistics (t value = 12.036, p value=0.001) which is very less than the standard significant level 0.05;

that is, the difference was statistically significant among case and control of weight gain during pregnancy.

Weight within one week before delivery (WBD) during pregnancy was 5.80~19 kg and the average weight within one week before delivery 83.29±10.64 kg in the case group and 79.81±8.94 kg in the control group and Statistically the test statistics (t value = 2.53, p value=0.012) which is very less than the standard significant level 0.05; that is, the difference was statistically significant among case and control of Weight within one week before delivery (WBD).

The Oral glucose tolerance test, weight gain 48~70 kg and the average weight gain 70.40±10.01kg in the case group and 66.31±8.94 kg in the control group and Statistically the test statistics (t value = 3.074, p value=0.002) which is very less than the standard significant level 0.05; that is, the difference was statistically significant among case and control of The oral glucose tolerance test , weight gain.

Table 5: Comparison of the family history of diabetes

Family history	Group		Total	Chi Squre value	P Value
	Case	Control			
YES	15	30	45	6.415	0.011
NO	87	72	159		
Total	102	102	204		

The pregnancy body mass index was 18.0~36.0, with an average of 26.92 ± 3.64 in the case group and an average of 26.96 ± 3.29 in the control group. The pre-pregnancy BMI was divided into Underweight group (1 cases), there is no such cases from control group , Normal weight (30 cases) and 31 cases from control group, Overweight 49 cases but 52 cases from control group, and Obesity 22 cases but from control group 19 cases.

From the above Table 5 Comparison of the family history of diabetes shown were 45 pregnant women with a family history of diabetes, 15 cases in the case group, 30 cases in the control group, 159 pregnant women who denied a family history of diabetes, 87 cases in the case group, and 72 cases in the control group. From the above table 5 shown the Chi square test value of table 5 is 6.415 with a p value 0.011 which is lesser than the standard p value 0.05, so there is sufficient evidence to conclude that there is significant association between the family history of diabetes of the pregnant of case and control group.

The incidence of overweight or obesity is 5.32 times the normal body weight. The risk of GDM for pregnant women with a family history of diabetes is 2.1 times that of a family without diabetes. As the age of pregnancy increases, the risk of GDM increases by 0.65 times.

Out of 204 Maternal delivery, there were 125 cases (61.27%) of normal deliveries and 79 cases (38.73%) of caesarean sections in the case and control groups, of which 85(68%) cases of normal delivery and 45(57%) cases of caesarean section in the case group, and 40(32%) cases of normal delivery and 34(43%) cases of caesarean section in the control group. Out of 204, 27 preterm births, with an incidence rate of 13.27%, are including 12 cases in the case group and 15 cases in the control group; 7 cases of premature rupture of membranes, with an incidence rate of 3.43%, including 3 cases in the case group and 4 cases in the control group.

Hypertension in pregnancy in 4 cases with an incidence rate of 1.96%, including 2 cases in the case group and 2 cases in the control group. 3 cases of polyhydramnios, an incidence rate of 1.47%, 2 cases in the case group and 1 cases in the control group; 9 cases of postpartum hemorrhage, the incidence rate 4.41%, 5 cases in the case group and 4 cases in the control group. Out of 204 new-born's was 112(54.90%) males, and 92(45.10%) females.

Placental weight: the average weight of the case group was 0.62 ± 0.035 kg, and the average weight of the control group was 0.57 ± 0.029 kg.

Umbilical cord length: the average length of the case group is 51.1 ± 7.4 cm, the average length of the control group is 49.1 ± 7.1 cm, there were 32 cases of fetal distress, with an incidence rate of 15.68%, including 11 cases in the case group and 21 cases in the control group; 1 cases of fetal growth restriction, with an incidence rate of 0.49%, including 1 case in the case group and 0 case in the control group, 12 cases of giant fetuses, with an incidence rate was 5.88%, with 4 cases in the case group and 8 cases in the control group, 1 cases of mild asphyxia, with an incidence rate of 0.49%, 1 cases in the case group and 0 case in the control group, 3 cases of neonatal deformity, with an incidence rate of 1.47%, including 1 cases in the case group and 2 cases in the control group.

Discussion

Gestational diabetes mellitus (GDM) is the first occurrence or discovery of different degrees of glucose tolerance abnormalities during pregnancy with a total incidence ratio of 1% to 14% and s 14% in the United States, 15% in Indians, and 7.3% in Vietnam. [1, 20] Zhu et al. 2013[1] reported an

international survey of the incidence of GDM in mainland China in 2013. [28]

Out of the 1952 number of pregnant women Two hundred two pregnant women were diagnosed with gestational diabetes and the incidence rate was 10.45%.

Screening methods for gestational diabetes mellitus have changed over time, from the earliest selective screening (based on risk factors) to universal screening by the glucose challenge test or the oral glucose tolerance test, recommended by the US Preventive Services Task Force (2014)and the American Diabetes Association (2020). [29, 30] The diagnostic accuracy of these screening methods varied, contributing to heterogeneity in the analysis.

The screening results of in these study 1952 pregnant women from Hitech hospitals showed that the incidence of GDM is 10.45%. , which is higher than the incidence of GDM reported in our country 8.56%. May be related to living standard, the city, living conditions, and reported time differences are related. It has been reported that the global incidence of GDM has increased significantly in recent years [30], which may be related to improved diagnostic techniques, diversified diets, excessive emphasis on pregnancy, improved living conditions, and over nutrition. Increase the attention of pregnant women to GDM, reduce the occurrence of GDM and its adverse effects on pregnancy outcomes, and improve the health of mothers and children.

Pregnant women with pre-existing diabetes and micro vascular disease (such as nephropathy and retinopathy) are at even greater risk of adverse maternal outcomes, particularly preterm birth and preeclampsia than those without micro vascular complications. Mothers with diabetic nephropathy are also at high risk of offspring complications such as congenital malformations, small for gestational age fetus, and perinatal death than those without nephropathy. [31] The latest domestic and foreign studies suggest that GDM is not only related to the adverse outcomes of premature maternal delivery, premature rupture of membranes, hypertension in pregnancy, hyper amniotic fluid, postpartum hemorrhage, and increased caesarean section rate. It also impacts adverse outcomes such as fetal distress, giant fetuses, and mild asphyxia, therefore, increasing morbidity and mortality of pregnant women and perinatal infants is needed. [6-10]

In this study, the incidence of overweight or obesity is 5.32 times the normal body weight. The risk of GDM for pregnant women with a family history of diabetes is 2.1 times that of a family without diabetes. As the age of pregnancy increases, the risk of GDM increases by 0.65 times.

In this study, premature rupture of membranes, with an incidence rate of 3.43% and Hypertension in pregnancy with an incidence rate of 1.96%, and polyhydramnios, with an incidence rate of 1.47%, and postpartum hemorrhage, with an incidence rate 4.41% and Umbilical cord length, with an incidence rate of 15.68%, and fetal growth restriction, with an incidence rate of 0.49%, and giant fetuses, with an incidence rate was 5.88%, and asphyxia, with an incidence rate of 0.49%, and neonatal deformity, with an incidence rate of 1.47%.

Conclusion

The incidence of gestational diabetes is 10.45%, which requires attention as it is a high ratio and needs to be controlled. Maternal age, family history of diabetes, and overweight or obesity is risk factors for GDM.

Compared with non-GDM women, the pregnancy outcomes are, for example, premature delivery, premature rupture of membranes, and hypertension during pregnancy, hyper amniotic fluid, postpartum haemorrhage, caesarean section, fetal distress, and occurrence of giant fetuses. Strengthen pregnancy education, prepare well before pregnancy, enhance nutritional and dietary balance knowledge, monitor and intervene GDM early throughout pregnancy, improve pregnancy outcomes, and improve maternal and infant health. Maternal age, family history of diabetes, and overweight or obesity is risk factors for the occurrence of GDM.

Proactively promote a reasonable diet and appropriate exercise during pregnancy, paying particular attention to the proportion of energy intake and maintaining normal blood sugar in the body. It is very necessary during pregnancy to actively understand the effects of GDM. Further understand the risk factors and their impact on pregnancy outcome, strengthen the attention of pregnant women to GDM, actively control blood sugar, reduce the harm caused by high blood sugar to mothers and children, reduce the economic burden of society, and make a great contribution to the health of mothers and children. Correct guidance and age-appropriate pregnancy are important guarantees for the health of mothers and children. And reasonable diet and strengthening exercise are vital in preventing and controlling the occurrence of GDM.

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