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Comprehensive care for pregnant women with gestational diabetes

1. INTRODUCTION

Gestational diabetes (GD) is any degree of glucose intolerance that begins or is first recognized during pregnancy[1]. GD is a precursor to type 2 diabetes mellitus, and both share a common pathophysiology: insulin resistance and dysfunction of pancreatic β cells[2].

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» GD can be categorized into[1]:

- Gestational Diabetes A1: controlled without medication and responds to nutritional treatment. It can also be referred to as diet-controlled gestational diabetes.
- Gestational Diabetes A2: controlled with medication to achieve adequate glycemic control.

In Spain, the prevalence of GD is 32.8%[3] and is increasing due to advanced maternal age at the time of gestation and rising obesity in the population[2].

2. DIAGNOSIS

Screening for GD is recommended for all pregnant women (without a prior diagnosis of type 1 or type 2 diabetes mellitus) between weeks 24 and 28 of pregnancy[1] ***(Table 1)***.

Screening is conducted using the **O'Sullivan test,** which involves measuring blood glucose 1 hour after administering 50 grams of glucose orally. If the blood glucose at one hour is > 140 mg/dL, the O'Sullivan test is considered positive.

In the case of a positive screening, diagnostic confirmation with an **oral glucose tolerance** test is necessary.

The oral glucose tolerance test consists of administering 75-100 grams of glucose orally and determining blood glucose levels before and after glucose administration. It is essential that there is fasting for 8-14 hours and that in the 3 days prior, a diet with a minimum intake of 150 g/day of carbohydrates and physical activity is followed. During the test, the woman should remain at rest and seated[2].

However, the American Diabetes Association (ADA) recommends distinguishing between women with pre-existing diabetes diagnosed for the first time during pregnancy and those who exhibit a transient insulin resistance related to pregnancy[5,2].

3. COMPREHENSIVE PRENATAL CARE

The recommendations for comprehensive prenatal care for a woman with GD are as follows:

- **Glycemic Control:** Regular monitoring of blood glucose levels during pregnancy is necessary to ensure they remain within safe limits for gestation. This is especially crucial when starting insulin treatment. It is recommended to perform four capillary blood glucose tests per day: fasting, preprandial, and postprandial at lunch or dinner (on alternate days) or to implement continuous glucose »

TABLE 1. Diagnostic criteria for diabetes (4).

WHEN?	WHO?	HOW?	WHERE?
1st trimester	High-risk pregnant women: • Age > 35 years. • Obesity (BMI > 30). • Personal history of GD • Poor obstetric history. • Family history of DM in first-degree relatives. • Ethnic minorities (Southeast Asians, Latin Americans, etc.)	O'Sullivan test. Oral glucose load of 50g.	At the health center, as priority patients.
2nd trimester (between 24-28 weeks)	All pregnant women not previously diagnosed.		
3rd trimester	Pregnant women with complications associated with GD not previously diagnosed.	Oral glucose load of 50g.	At the hospital.

TABLE 2. Glycemic targets for women with gestational diabetes.

PARAMETER	TARGET VALUES
Fasting glucose	70-95 mg/dL
Postprandial glucose (1 hour)	110-140 mg/dL
Postprandial glucose (2 hours)	100-120 mg/dL
Continuous glucose monitoring	Time in range (63-140 mg/dL)> 70% Time < 63 mg/dL< 4% Time > 140 mg/dL< 25%
HbA1c within the 1st trimester	< 6.5%
HbA1c within the 2nd and 3rd trimesters	< 6.0%

THERE IS NO REASON TO AVOID ATTEMPTING A VAGINAL DELIVERY, EVEN THOUGH THE LIKELIHOOD OF SUCCESS IN VAGINAL DELIVERY MAY BE LOWER THAN IN WOMEN WITHOUT DIABETES

TABLE 3. Nutrient distribution in the diet during pregnancy with GD.

CARBOHYDRATES	40-50%	175 grams	Complex and with a low glycemic index. Primarily whole grains, fruits, and vegetables.
PROTEINS	20%	71 grams	Distribute across all meals to increase satiety.
FATS	30-40%	28 grams	Limit saturated and trans fats.

» monitoring. Glycemic targets are outlined in Table 2[6,7].

- **Pharmacological Treatment:** The administration of pharmacological treatments should only be considered if lifestyle changes are insufficient to maintain blood glucose levels within acceptable limits after 1-2 weeks. The preferred pharmacological treatment option is insulin[6].

- **Nutritional Therapy:** Caloric intake should be adequate to promote the health of both the mother and the fetus/neonate and to achieve glycemic control targets and appropriate weight gain. Most women with GD (70% up to 85%) can achieve normal blood glucose levels solely with nutritional therapy. Women often require a diet of 1800 up to 2500 kcal/day. The recommended nutrient distribution is outlined in Table 3[8,2].

- **Physical Activity:** Moderate-intensity aerobic and resistance exercise (20-50 minutes/day, 2-7 days/week) improves glucose outcomes and reduces the need to start insulin or the doses of insulin required[8].

- **Psychological Support:** GD is associated with an increased risk of mental health disorders, such as depression during pregnancy and postpartum, anxiety, and post-traumatic stress disorder. Therefore, it is crucial to provide mental health care for women with GD[9].

FREQUENTLY ASKED QUESTIONS

Women often express their concerns during consultations, asking about the consequences of GD on their health and that of their baby. Some of the most common questions are as follows:

What complications can arise during my pregnancy with GD?

- Large for gestational age (LGA) fetuses: Due to persistent hyperglycemia, »

» they are at a higher risk of developing macrosomia, which in turn is associated with a higher likelihood of instrumental delivery.

- Preeclampsia: This is more common in women with gestational diabetes vs those without this condition. Insulin resistance appears to be the underlying factor in this relationship.

- Polyhydramnios: This is more common in women with gestational diabetes, although it does not seem to be linked to a significant increase in morbidity or mortality.

- Neonatal complications: Babies born from pregnancies complicated by gestational diabetes are at greater risk of hypoglycemia, hyperbilirubinemia, hypocalcemia, hypomagnesemia, polycythemia, respiratory distress, and/or cardiomyopathy; in some cases, intrauterine fetal death can occur[2].

What will my delivery be like with GD?

There is no reason to avoid attempting a vaginal delivery, even though the probability of success in vaginal delivery may be lower than in women without diabetes[7]. However, elective induction is recommended between weeks 38 and 40 to reduce the risk of neonatal mortality. Additionally, cesarean delivery is suggested if the pregnancy extends beyond 40 weeks and 6 days, but it may be necessary sooner to prevent maternal or fetal complications. During labor and delivery in women with GD, the nurse will monitor blood glucose every hour or every 30 minutes to prevent neonatal hypoglycemia, resulting from fetal hyperinsulinemia due to maternal hyperglycemia[6]. Capillary blood glucose during delivery should be between 70 mg/dL and 110 mg/dL. Moreover, a 5%-10% dextrose solution will be administered, and in cases where insulin is required, rapid-acting insulin will be administered intravenously, preferably[7].

Does GD go away after delivery?

In most cases, GD disappears shortly after delivery. In those cases where it persists, it is categorized as type 2 diabetes mellitus. Nearly 50% (one in two) women who have had GD develop T2DM in the future (10).

Women diagnosed with GD are advised to undergo a 75-gram oral glucose tolerance test between 6 and 12 weeks postpartum, and then periodically every 1 to 3 years[1].

Furthermore, it is crucial for those who have had GD to maintain an exercise regimen and a healthy diet after pregnancy to prevent or delay the development of T2DM[10]. D

CONCLUSIONS

Women with GD face a higher risk of mental disorders during and after pregnancy, such as depression and anxiety. Prenatal care should be comprehensive, including glycemic control, nutritional therapy, physical activity, and psychological support. During delivery, careful monitoring of glycemic control is required to prevent neonatal complications. After delivery, it is crucial to conduct follow-up testing to detect the persistence of T2DM and to maintain a healthy lifestyle. Ultimately, integrated care during pregnancy, delivery, and the postpartum period is essential to ensure optimal health for both the mother and the baby in women with GD.

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