To and fro, obstetricians and endocrinologists have long debated the relative value of diagnosing and treating gestational diabetes mellitus (GDM). No doubt, significant health advantages can follow from identifying and treating women who have GDM, including:

- protecting the fetus from macrosomia and a lifetime of excess body fat and obesity
- avoiding birth injury, such as shoulder dystocia, and life-long paralytic disability
- early recognition of a group of women at risk of type 2 diabetes mellitus, which can result in cardiovascular disease and premature death when undertreated.1-6

Setting thresholds is a key sticking point

A fundamental issue with establishing diagnostic criteria for GDM, however, is that a continuum relationship exists between, on one hand, the maternal circulating glucose concentration below a level diagnostic of type 2 diabetes mellitus and, on the other hand, such outcomes as macrosomia, neonatal hyperglycemia, preeclampsia, preterm delivery, shoulder dystocia, birth injury, hyperbilirubinemia, and admission to a neonatal intensive care nursery. That is why there’s been a need for an expert consensus panel to establish glucose cutoffs that separate a “normal” state from GDM, based on an analysis of benefits and risks.

In June 2008, the International Association of Diabetes and Pregnancy Study Group convened 225 experts, from 40 countries, to review data and establish new criteria for diagnosing GDM.7 The panel decided that its target for detailed analysis should be a maternal glucose concentration that resulted in an increased risk of 1.75 for various adverse outcomes.

PART 1: New criteria for making a diagnosis of GDM

Consequently, the Study Group consensus panel concluded that GDM should be diagnosed when any one of three tests is abnormal:

- fasting venous plasma glucose ≥92 mg/dL but <126 mg/dL
- 1-hour glucose after a 75-g oral glucose load (the oral glucose tolerance test [OGTT]) ≥180 mg/dL
- 2-hour glucose after a 75-g OGTT ≥153 mg/dL.

Note the implications of these conclusions on diagnosis: Among the findings of the Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study,4 8.3% of subjects had a fasting venous plasma glucose ≥92 mg/dL, and would be diagnosed with GDM, and an additional 7.8% had a 1-hour or 2-hour glucose above threshold limits after an OGTT. In total, therefore, 11.1% of women in the HAPO study had one elevated result; 3.9% had two elevated results; and 1.1% had all three results elevated.

PART 2: New criteria for diagnosing overt diabetes in pregnancy

The Study Group consensus panel recommended using the following tests and thresholds to diagnose overt diabetes (not GDM) in pregnancy:

- fasting venous plasma glucose ≥126 mg/dL
- hemoglobin A1c ≥6.5%
- random plasma glucose ≥200 mg/dL.

If one of the tests listed above is abnormal, a confirmatory test is clinically appropriate.

Testing during first and second trimesters

The consensus panel recommends that, at the first prenatal visit, you...
Interventions to prevent gestational diabetes

The percentage of pregnant women who have gestational diabetes mellitus (GDM) is increasing: In Massachusetts, from 1998 to 2006, the rate rose from 3.4% to 4.9%. In part, we’ve seen this rise because minority women, older women, and overweight women—all of whom are at increased risk of GDM—account for a growing percentage of pregnant women.1 Given ongoing change in these birth demographics, the increase in the rate of GDM over the past decade will likely continue—even accelerate.

We can make a difference. Here is how.

Effective interventions for preventing GDM are to 1) optimize metabolic conditioning and body mass before pregnancy and 2) exercise and limit weight gain, consistent with fetal health, during pregnancy.2

In a large cohort study, a BMI >25 kg/m² was associated with a relative risk of having a diagnosis of GDM of 2.25, compared with the risk in women whose BMI was <25 kg/m².3

Abdominal obesity, as measured by waist-hip ratio, also appears to be independently associated with an increased risk of GDM. In a small clinical trial, exercise training during pregnancy—comprising 200 minutes of cycling a week at 65% of predicted aerobic capacity—reduced birth weight by 4%, improved maternal insulin sensitivity, and reduced concentrations of fetal cord insulin-like growth factors I and II.4

Although the panel did not recommend applying the following piece of information in clinical practice, it noted that, if the fasting venous plasma glucose is ≤80 mg/dL in the first trimester, 1) it is unlikely that the patient will have an adverse pregnancy outcome attributable to hyperglycemia and 2) it might be possible to avoid the second-trimester OGTT in this select group.

References


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The panel also recommends that you evaluate pregnant women for diabetes mellitus during the first trimester and again at 24 to 28 weeks’ gestation. The consensus panel recommends ending use of the 1-hour glucose loading test and the 3-hour OGTT. They recommend that you use a 2-hour 75-g OGTT whenever you employ an oral glucose load in the algorithm for diagnosing diabetes—whether your patient is pregnant or not.

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Emphasis on detecting type 2 diabetes will strengthen. OBs and primary care providers need to do more to ensure that women who have a history of GDM are routinely evaluated for type 2 diabetes mellitus after delivery and as they age. Screening for type 2 diabetes has now been simplified by the consensus group’s recommendation that you test for hemoglobin A₁c—with a level ≥6.5% suggesting a diagnosis of diabetes.

Continued on Page 8
These proposals probably won’t end the back-and-forth

Proponents and skeptics are likely to continue their back-and-forth about the right approach to diagnosing and treating GDM. It’s likely that additional research is needed to more firmly establish a quantitative relationship between the newly proposed criteria for diagnosing GDM, and various fetal, childhood, and maternal outcomes. In addition, more research is needed to identify the most cost-effective approach to diagnosing and treating GDM.

When it comes to GDM, are you an OBskepticitian or an OBconvert?

References

Gestational diabetes mellitus: True or False?

1. White women are at greater risk of gestational diabetes mellitus (GDM) than women from Southeast Asia because the latter tend to have a smaller body mass index. TRUE? FALSE?

2. Nutritional recommendations for women who have GDM include dividing calories over three meals and three snacks that, in total, have a nutritional distribution of 20% carbohydrate, 30% protein, and 50% fat. TRUE? FALSE?

3. When using a 50-g glucose test to screen women for GDM, a plasma or serum glucose threshold ≥130 mg/dL is more sensitive than a glucose threshold ≥140. TRUE? FALSE?

4. Hemoglobin A1c is a measurement of glucose control over the preceding 3 months. TRUE? FALSE?

5. Iron deficiency anemia is associated with an increased hemoglobin A1c value in pregnant and nonpregnant women. TRUE? FALSE?

See page 68 for the answers.