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Is It Time to Modify the Glucose Tolerance Test for the Diagnosis of Gestational Diabetes?

The diagnosis of gestational diabetes mellitus (GDM) identifies two people at increased risk. The glucose levels in pregnancy that define the risk to the mother of developing non-insulin dependent diabetes at a future date are well established. However, the method of testing and the maternal glucose levels that will be most sympathetic to the fetal outcome are still to be defined.

In the November 1994 issue of *Diabetes Care*, Pettitt et al. (1) raised several important points regarding the diagnosis of GDM.

First, a 2-h glucose level ≥7.8 mmol/l after a 75-g glucose load appeared to be a better predictor of certain fetal outcomes than the National Diabetes Data Group criteria. A change to the World Health Organization (WHO) criteria during pregnancy would also facilitate comparisons with subsequent nonpregnant glucose tolerance test (GTT) results.

Second, doubts about the reliability and hence the usefulness of the fasting glucose level for the diagnosis of GDM were raised. These concerns have also been expressed by the WHO (2).

Third, nearly one-third of patients who were scheduled for a two-stage diagnostic procedure did not return for the second stage. Little importance has been given so far to the "no show" rate, which must markedly alter the incidence and the clinical reliability of testing for GDM.

These observations suggest that more consideration should be given to a testing procedure that is simple to administer from the medical side, encourages a high rate of maternal compliance, and is predictive of adverse fetal outcomes.

Since the beginning of 1993, a modification of the 75-g GTT (MGTT) has been evaluated in the Illawarra area of Australia. Women at two prenatal clinics have, over alternating 6-month periods, been offered either a GTT with both fasting and 2-h samples or an MGTT in which only the 2-h sample is taken. Both tests are administered in the morning after an overnight fast. The advantage of the MGTT is that the patient can be given the glucose solution at a preceding prenatal clinic (or doctor's office) visit and only needs to present for one blood test (3). GDM is diagnosed if the fasting plasma glucose is ≥5.5 mmol/l and/or the 2-h plasma glucose is ≥8.0 mmol/l (4).

However, even with this one-stage procedure there have been different rates of initial compliance. Ninety-four percent (707 out of 752) have completed the simpler MGTT, while only 90.1% (1,237 out of 1,367) have completed the GTT ($\chi^2 = 8.01$, df = 1, $P < 0.01$).

Apart from a 0.2 mmol/l difference in the 2-h glucose level for the diagnosis of GDM, the major difference between the MGTT and the one-stage test used by Pettitt et al. (1) is whether the woman needs to fast before the test. The argument against the need for fasting is convincing, and not fasting would further simplify the procedure.

Perhaps now is the time to revise the GTT used in pregnancy so that the glucose criteria are more sympathetic to the fetal outcome and the testing procedure is simplified to encourage the highest possible rate of maternal compliance.

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Insulin Sensitivity in Patients with NIDDM and the A-to-G Mutation at Nucleotide 3,243 of the Mitochondrial $tRNA^{Leu(UUR)}$ Gene

Recent studies have shown linkage between diabetes and mutations in mitochondrial DNA, the most common of which is a G-to-A transition in the $tRNA^{Leu(UUR)}$ gene at nucleotide 3,243