

DIABETES

Criteria for the diagnosis and treatment of gestational diabetes mellitus—time for a change

Landon and co-investigators call for a re-evaluation of current criteria for the diagnosis and treatment of gestational diabetes mellitus. Adverse maternal–fetal outcomes were observed at glucose levels below the current cutoffs for the diagnosis of the disease in their recent research.

Debate rages on the benefits of screening and treatment for gestational diabetes mellitus and on what constitutes appropriate thresholds for the diagnosis of the disease. Although evidence that has amassed in the past few years lends support to the argument that the risk of adverse perinatal outcomes could be reduced by diagnosis and treatment (even for mild gestational diabetes mellitus) questions still remain. Landon *et al.* aimed to inform the debate by examining the relationship between differing degrees of maternal hyperglycemia and perinatal outcomes, including macrosomia.

The researchers conducted a secondary analysis of a randomized clinical trial for the treatment of mild gestational diabetes mellitus; the study population of the current analysis included 1,841 pregnant women between 24 weeks and 30 weeks and 6 days of gestation who had been in the untreated or observational groups of the trial.

The investigators divided the women into four groups on the basis of glycemic status for comparison of perinatal outcomes. Women in the first group ($n = 473$) had untreated mild gestational diabetes mellitus as defined by current criteria. The second and third groups consisted of women with a positive 50 g glucose challenge test result (≥ 7.5 mmol/l) and either one abnormal OGTT value ($n = 256$) or no abnormal OGTT value ($n = 675$). The fourth group included women with a normal 50 g glucose challenge test (< 6.7 mmol/l).

The researchers' analyses revealed a significant increasing trend by worsening

glycemic status for a composite of adverse perinatal outcomes (including hypoglycemia, perinatal mortality, hyperbilirubinemia, birth trauma and elevated cord blood C-peptide level) and for separate adverse perinatal outcomes, including an increased frequency of babies born large for gestational age. Furthermore, an abnormal glucose challenge test result of ≥ 7.5 mmol/l significantly increased the risk of the composite perinatal outcome and of babies being born large for gestational age.

Importantly, similar frequencies of some perinatal outcomes were found for the group with one abnormal OGTT result as for the group with untreated gestational diabetes mellitus. These results reinforce previous evidence to suggest that the presence of one abnormal OGTT should be considered in criteria for the diagnosis of the disease.

Next, the researchers looked for trends between categories of OGTT results and perinatal outcomes. With increasing glucose levels in fasting and 1 h, 2 h, and 3 h OGTTs, increasing frequencies of composite adverse perinatal outcomes and various single adverse perinatal outcomes—including babies being born large for gestational age—were found.

For these OGTT glucose levels groupings, and after correction for confounders including maternal age, gestational age at enrollment and at delivery, parity, BMI and ethnicity, increased risk for the composite of adverse perinatal outcomes became evident at a fasting glucose level of ≥ 5.0 mmol/l or a 1 h glucose level of ≥ 9.2 mmol/l. Increased risk of babies being born large for gestational age became apparent at a 1 h glucose levels of 8.3 mmol/l. However, increased risk for the composite of adverse perinatal outcomes was not observed until well beyond current diagnostic thresholds for 2 h and 3 h OGTT glucose levels.



As the investigators point out in the article, the adverse maternal–fetal outcomes were observed across the spectrum of carbohydrate intolerance and included glucose values below current cutoffs for the diagnosis of gestational diabetes mellitus.

New diagnostic criteria have been proposed that, if adopted, would considerably increase the number of women diagnosed with gestational diabetes mellitus—a disease that is, in any case, on the increase owing to the obesity epidemic. Landon and co-workers hope that their insights together with the findings of treatment trials will provide useful insights for professional organizations as they consider the best and most cost-effective way forward.

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Original article Landon, M. B. *et al.* The relationship between maternal glycemia and perinatal outcome. *Obstet. Gynecol.* 117, 218–224 (2011)