COMMENT ON CHEUNG AND MOSES

Gestational Diabetes Mellitus: Is It Time to Reconsider the Diagnostic Criteria? Diabetes Care 2018;41:1337–1338

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While it may be unconventional to comment on a Commentary, emphasis on some of the points raised by Cheung and Moses (1) as well as the addition of a few others seems indicated. The Hyperglycemia and Adverse Pregnancy Outcome (HAPO) study, which combined data from 15 medical centers on five continents, created a large database of glucose tolerance test (GTT) results of pregnant women representing a diversity of racial and ethnic groups. Their combined data demonstrated a near-linear positive association between maternal glucose levels and selected adverse pregnancy outcomes (2). Given this observation, one may reasonably infer that threshold values defining gestational diabetes mellitus (GDM) derived from these data will correctly identify for special treatment some women at risk for adverse outcomes while not identifying those at risk for these outcomes whose GTT results fall below the selected thresholds. At what glucose concentrations to set these thresholds is the crux of the authors' discussion. The consensus approach taken by the International Association of the Diabetes and Pregnancy Study Groups (IADPSG) was to select the average glucose values at which odds for birth weight >90th percentile, cord C-peptide >90th percentile, and percent body fat >90th percentile reached 1.75 times the estimated odds of these outcomes at mean glucose values (3). While this approach is reasonable in the absence of a binary relationship between glucose concentrations and adverse outcomes, it fails to consider the benefits and collateral harms as well as economic and psychological costs for the women undergoing testing. A more patient-oriented approach is the determination of the lowest values on a GTT associated with adverse outcomes. The authors cited data suggesting that the numerical relationships between GTT results and adverse outcomes may differ among geographic, racial, and ethnic groups. A study of 9,835 untreated women of whom 1,892 (19.2%) met IADPSG criteria for GDM found no differences in the prevalence of preeclampsia/eclampsia, preterm birth, cesarean deliveries, shoulder dystocia, neonatal hypoglycemia, and transient tachypnea between those who had GDM at the lower end of IADPSG-defined hyperglycemic spectrum and those who did not have GDM. However, significant differences in each of these outcomes were found comparing women who met the higher IADPSG criteria (odds ratio 2.0: fasting glucose 5.3 mmol/L, 1-h glucose 10.6 mmol/L, 2-h glucose 9.0 mmol/L) with those who did not have GDM (4). A complementary approach is to define GDM criteria based on response to treatment. In the U.S., it took 45 years from publication of O'Sullivan's criteria to the publication of a study demonstrating that treatment of GDM identified by those criteria was effective in significantly decreasing the incidence of some adverse outcomes associated with this disease (5). The execution of such a study on patients identified by IADPSG criteria would likely provide a scientifically based clinically applicable grounding for defining GDM based not only on the relationship between maternal glucose and adverse outcomes but also on the response to treatment. Finally, the rationale for endorsing universal criteria for GDM must be scrutinized. Beyond the potential utility for data comparison within the scientific community, the clinical benefit of a universal definition for GDM remains unclear.

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