COMMENTS AND RESPONSES

Gestational Diabetes Mellitus: Simplifying the International Association of Diabetes and Pregnancy Diagnostic Algorithm Using Fasting Plasma Glucose

Comment on Agarwal, Dhatt, and Shah

Using a large retrospective study in Arab (80.1%) and South Asian (15.5%) pregnant women, Agarwal et al. (1) questioned the helpfulness of the full 2-h oral glucose tolerance test (OGTT), as recommended by the International Association of the Diabetes and Pregnancy Study Groups (IADPSG) for the diagnosis of gestational diabetes mellitus (GDM) (2). The IADPSG proposes measuring fasting plasma glucose (FPG), 1-h plasma glucose and 2-h plasma glucose, with respective thresholds of 5.1, 10.0, and 8.5 mmol/l; at least one of these thresholds must be met to diagnose GDM. Agarwal et al. suggest an FPG ≥5.1 mmol/l–based diagnosis of GDM and a defined FPG <4.4 mmol/l to exclude GDM; women meeting these criteria would therefore not require OGTT. According to this approach, the number of OGTTs would be cut by 50.6%.

We investigated the impact of IADPSG guidelines in a cohort of pregnant women from the general population followed prospectively to assess the O'Sullivan test during the first trimester; a 75-g OGTT was administered between the 24th and 28th week. Preliminary data (n = 459, 94% Caucasian, age 28.0 ± 4.4 years, preconception-reported BMI 24.6 ± 5.7 kg/m^2, gestational age at time of OGTT: 26.5 weeks) showed that the number of GDM cases defined by the American Diabetes Association (ADA) (3) versus IADPSG thresholds (applied to the same OGTT) increased by 3.6-fold (Agarwal et al. reported a similar 2.9-fold increase) from 12 cases (prevalence: 2.6%) to 43 (prevalence: 9.4%). These 43 cases were categorized across seven groups based on the number of values over IADPSG thresholds: *1*) FPG only (9 cases, 21%), *2*) 1-h plasma glucose only (12 cases, 28%), *3*) 2-h plasma glucose only (9 cases, 21%), *4*) FPG and 1-h plasma glucose (5 cases, 11.6%), *5*) FPG and 2-h plasma glucose (no cases), *6*) 1-h plasma glucose and 2-h plasma glucose (5 cases, 11.6%), and *7*) FPG and 1-h plasma glucose and 2-h plasma glucose (3 cases, 7%).

Our data evidenced that using FPG ≥5.1 mmol/l as the single criterion would overlook 26 cases (60%), whereas combining FPG and 1-h plasma glucose would still miss 9 cases (21%). Moreover, among our 26 cases with FPG below the 5.1 mmol/l threshold, 10 had FPG <4.4 mmol/l but high 1-h and/or 2-h plasma glucose. Overall, using FPG 5.1 and 4.4 mmol/l thresholds would have reduced by 40% the number of OGTTs (from 43 to 26) but would have missed 23% (n = 10) of GDM cases. Our data thus contrast quite strikingly with the observations of Agarwal et al. (4.6% missed by not testing FPG <4.4 mmol/l).

Reasons for such discordant results include ethnicity (Caucasian vs. Arab/South Asian women) and related higher baseline insulin resistance in Arab/South Asian women(4). Among other major risk factors and potential confounders, mean age in both populations was similar; BMI was not reported in the article by Agarwal et al.

Our findings provide evidence for the use of 2-h OGTT with three glucose measurements. Interpretation of fractional IADPSG recommendations appears to be tricky. As Agarwal et al. mentioned, clinical attention to GDM has suffered from the lack of standardized and clear guidelines. In our view, IADPSG guidelines offer a unique opportunity for a unified and global approach to GDM.

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