OBSERVATIONS

Diagnosis of Gestational Diabetes Mellitus: A Different Paradigm to Consider

The recently completed National Institutes of Health (NIH) (1) consensus development conference on the diagnosis of gestational diabetes mellitus (GDM) found insufficient evidence to change from current practice to that recommended by the American Diabetes Association (2). The NIH final statement identified some key research gaps, the first mentioned of which was to "evaluate the diagnostic thresholds associated with an odds ratio (OR) for adverse outcomes of 2.0 in the [Hyperglycemia and Adverse Pregnancy Outcomes] HAPO study (as opposed to the OR of 1.75 that is currently recommended by the International Association of Diabetes in Pregnancy Study Groups [IADPSG])." We currently have data that may assist in this consideration.

The results herein reported are from a post hoc analysis of a prospective study carried out in 2010 (3) to determine the prevalence of GDM with the proposed IADPSG (4) criteria compared with the prevalence using the then existing Australian Diabetes in Pregnancy Society (ADIPS) criteria.

Briefly, this study was carried out in a city where all pregnant women are requested to have a diagnostic 75-g glucose tolerance test, in this case with samples fasting and at 1 and 2 h, at the end of the second trimester. There is a high compliance with this request. Samples were collected for the first 6 months of 2010 from women attending the antenatal clinics at the only public obstetric hospital (n = 571) and from women attending a major private pathology provider (n = 704). Approximately one-half of the women attending the private pathology provider were women having "shared care" between their family doctors and the antenatal clinic, who would subsequently deliver in the public hospital, and approximately one-half were women who would be delivered in a private hospital and attending one of several private obstetricians. Women attending for private pathology were older than women attending the public hospital.

With the IADPSG criteria compared with the ADIPS criteria, the prevalence of GDM increased from 8.6 to 9.1% for antenatal clinic patients, from 10.5 to 16.2% for private patients, and overall from 9.6 to 13.0%. This overall prevalence was similar to the 12.1 and 13.0% from a post hoc analysis of two Australian sites participating in the HAPO study.

With an OR of 2.0, the glucose tolerance test diagnostic values were fasting ≥5.3 mmol/L, 1 h ≥10.6 mmol/L, and 2 h ≥9.0 mmol/L (5). The prevalence of GDM with these criteria was 5.6% for antenatal clinic patients, 8.4% for private patients, and 7.1% overall. Whereas with an OR of 1.75, in our predominantly Caucasian population, 57% of women would have been diagnosed based on the fasting glucose alone, this reduced to 33.7% with an OR of 2.0.

The strengths of the original study were that it was prospective and included women attending both the public hospital and the offices of private obstetricians. Women attending privately were older and had a much higher prevalence of GDM, presumably because of their increased age. Determination of the true prevalence of GDM in a community or country must consider all of the health care delivery options. Using an OR of 2.0 will reduce the prevalence of GDM, compared with using an OR of 1.75, and shift the diagnostic emphasis away from the fasting glucose value. In our community, use of an OR of 2.0 would give the same approximate prevalence of GDM as would the older ADIPS criteria.

There is a continuum of risk for increasing glucose levels in pregnancy and a variety of adverse pregnancy outcomes. There is also an increasing prevalence of diabetes and lesser degrees of glucose intolerance in the community that can be first detected or predicted by testing during pregnancy. Given these two major considerations, it is reasonable to consider determining the percentage of women to be diagnosed with GDM and adjusting the diagnostic criteria accordingly.

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