Letter to the Editor of Diabetes Care
Proposal for the reconsideration of the definition of gestational diabetes

In 1997, the ADA announced a new diagnostic criterion for diabetes and set the definition of gestational diabetes (GDM). Prior to 1991, GDM was defined as “a transient abnormality of glucose tolerance during pregnancy” (2,3,4). However, the 1997 definition of GDM by the ADA includes diabetes mellitus diagnosed during pregnancy. This definition ignores the added risks to the mother and to the fetus when the mother has undiagnosed type 2 diabetes. We propose reconsideration of the definition which would separate diabetes and slight abnormal carbohydrate, so called “GDM” in order to provide a better model of care for type 2 diabetic pregnant women.

There are three problems concerning an undiagnosed type 2 diabetic woman, that are not major issues in pregnant women who are first found with abnormal glucose tolerance in pregnancy that resolves after pregnancy. First is that the entire pregnancy is associate with abnormal carbohydrate metabolism, not just the second half. The second problem is related to the rate of congenital malformations of newborns from these pregnant women. The third is concerned with undiagnosed diabetic retinopathy.

In our Japanese cohort, we observed based on results of 75g OGTT (Japan criteria two or more values above: fasting > 100 mg/dl, 1-h >180 mg/dl, 2-h >150 mg/dl), for 1416 pregnant women who had risk factors for GDM, we found the frequency of GDM in first trimester is the highest, 33/250 (13.2%), second trimester 32/417(7.7%), and third trimester 37/749 (4.9%). Similarly, the frequency of type 2 diabetes is the highest in the first trimester 6.0%, 2.6%, in the second trimester 1.3%, and in third trimester. Thus women with positive OGTT, GDM accounts for 7.2% and type 2 diabetes diagnosed during pregnancy accounts for 2.5% of the total pregnant population. In other words, 35% of women with a positive OGTT have type 2 diabetes diagnosed for the first time in pregnancy.

In this cohort the congenital malformation rate from GDM patients were 1.9%, and was no different than the rate in the general Japanese population. In contrast, the congenital malformation rate in infants of type 2 diabetic mothers diagnosed during pregnancy was higher than that of children from pre-gestational diabetic mothers treated during pregnancy; 12.7% versus 4%, respectively.

There were no GDM patients with retinopathy. However, the rate of background retinopathy was 12.7% and proliferative retinopathy was 4.2% in the type 2 diabetic women diagnosed for the first time during pregnancy.
Similar rates and complications were seen in a cohort of pregnant women in Santa Barbara, California where a total of 49,861 pregnancies occurred in our Mexican American population from 1997-2004. A total of 4133 (8.3%) had a positive OGTT based on the ADA criteria (1). However, 40% of the “GDM” women, had type 2 diabetes first diagnosed during pregnancy based on our criteria: acanthosis nigricans, requiring insulin before the twelve week of gestation, because they failed to maintain goals with on dietary intervention alone (6). Five percent of the type 2 women had retinopathy and 7% had significant proteinuria at time of diagnosis.

O’Sullivan defined GDM as “a transient abnormality of glucose tolerance during pregnancy” (2). We should return to this time honored definition. If type 2 diabetes is first detected during pregnancy, then it should be named as such. Data presented here underscores that this is a worldwide problem. In preparation for the November 2005 Fifth International Gestational Diabetes Conference, it is timely that we reconsider our definition of GDM.

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References
3) Hare JW., White P; Gestational Diabetes and the White Classification, Diabetes Care3(2)394-396 1980
4) Pedersen J; The Pregnant diabetic and her newborn, second ed. P46 1977 Munksgaard Copenhagen