

# Diabetes Can Complicate Depression in Pregnancy

BY DOUG BRUNK  
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SAN DIEGO — Women with diabetes and untreated depression who become pregnant face a host of risks to themselves and their fetus if their conditions are not managed properly, Laura J. Miller, M.D., warned at the annual scientific sessions of the American Diabetes Association.

These women face the risk of “decreased prenatal care, decreased ability to meet the nutritional demands of pregnancy—either because of eating too little in general or not eating healthy foods—and an increased risk of addictive substance abuse, which in turn can be teratogenic. Most notably, that includes alcohol consumption and cigarette smoking. They both go up with untreated depression during pregnancy,” said Dr. Miller, a psychiatrist who directs the women’s mental health program at the University of Illinois at Chicago.

The potential effects on pregnancy outcome are “significantly bad.” in the sense that untreated depression, even in the absence of diabetes, “increases low birth weight in offspring, increases the risk of premature birth, increases rates of preeclampsia, and increases neonatal irritability,” Dr. Miller said.

“Even in the absence of other confounding factors, if you compare newborns just a few hours after birth, born to mothers with untreated depression during their pregnancy as opposed to other newborns, you’ll find excessive crying, difficulty with sleep, fussiness, and difficulty being soothed.”

Some of the ill effects of depression on diabetes could be related to the diabetes disease process itself, Dr. Miller said. For example, elevated cortisol is relatively common in depression and can affect blood glucose levels. Even so, she maintained that most of the effects of depression in women with diabetes appear to be due to decrements in diabetes self-care. “That’s on every level: less adherence to diet and as a result, higher body mass index, less physical activity, more smoking, less self-monitoring of blood sugar levels, and less adherence to diabetic medication,” she said.

Dr. Miller discussed the telltale signs of untreated clinical depression and how those symptoms could influence diabetes outcomes:

► **Enduring depressed mood or anhedonic state.** A woman with diabetes who is anhedonic



LOUITA JONES

**Depression during pregnancy can cause women to engage in risky behaviors, such as smoking.**

“will have a difficult time caring about themselves to follow through with self-care for diabetes,” Dr. Miller said.

► **Changes in appetite and weight.** This could involve increased or decreased appetite “and often an appetite for different kinds of foods—often very sugary foods—and changes in sleep that, in turn, affect changes in appetite and weight,” she said. “This could directly influence blood glucose control in diabetes.”

► **Psychomotor retardation.** The resulting sense of fatigue or feeling of less energy brought on by this symptom could influence a person’s metabolic rate and exercise level.

► **Feelings of guilt or worthlessness.** “Some people just don’t feel that they’re worth the bother of diabetes self-care,” she observed.

► **Impaired concentration.** This may result in the woman’s inability to remember whether she took her insulin or oral hypoglycemic “and taking too much or too little as a result.”

► **Thoughts of death, including suicidal thoughts.** Dr. Miller said it is not uncommon for people with diabetes to use insulin in a suicide attempt.

“Looking at all of those symptoms, it should not surprise us that studies almost consistently find strong links between depression and diabetes,” she said. ■

## Weight Gain Prior to Pregnancy Increases Women’s Risk of Gestational Diabetes

SAN DIEGO — Weight gain in the 5 years before pregnancy is associated with an increased risk for gestational diabetes, Monique Hedderson reported in a poster at the annual scientific sessions of the American Diabetes Association.

In a nested case-control study including 114 women with gestational diabetes mellitus (GDM) and 95 controls who were members of Kaiser Permanente of Northern California, those who had gained between 1 kg and 10 kg in the 5 years before their last menstrual period were nearly twice as likely (crude odds ratio 1.98) to have developed GDM during pregnancy than were those whose weight remained within 1 kg of baseline.

Those who had lost 1.1-8.3 kg had an insignificantly lower unadjusted risk for GDM (0.79), said Ms. Hedderson, of Kaiser Permanente, Oakland, Calif., and her associates.

The women who developed GDM were older, more likely to be from an ethnic minority group, more likely to be overweight at baseline, and more likely to be primiparous or to have had at least two prior live births. After adjustment for these factors, the relationship between prepregnancy weight gain and GDM was even stronger, with an odds ratio of 2.58. The relationship with weight loss was again insignificant (OR 0.9).

—Miriam E. Tucker

## Individualize Glucose Control During Pregnancy

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LOS ANGELES — Pregnancies complicated by type 1 or type 2 diabetes mellitus can have good outcomes with new strategies for glucose control, Steven G. Gabbe, M.D., said at the annual meeting of the Society for Gynecologic Investigation.

At less than 5%, the perinatal mortality rate of children whose mothers have diabetes is comparable with the rate in children of women without diabetes, according to Dr. Gabbe, dean of Vanderbilt University School of Medicine in Nashville, Tenn. Nonetheless, preventing congenital malformations and overly large babies remains a challenge.

“We have to develop individualized programs of insulin for our patients,” he said, outlining strategies that emphasize patient education and self-management.

Glucose control goals change with pregnancy, Dr. Gabbe said. Physicians should counsel diabetic women before conception to bring their glycosylated hemoglobin (HbA<sub>1c</sub>) levels to no more than 1% above the normal range. Targeted plasma glucose levels should be 80-110 mg/dL before meals and less than 155 mg/dL after meals.

During pregnancy, target plasma glucose levels should be 60-90 mg/dL before breakfast; 60-105 mg/dL before lunch, supper, or a bedtime snack; less than 120 mg/dL 2 hours after meals; and above 60 mg/dL between 2 a.m. and 6 a.m. The mean capillary glucose level should be maintained below 100 mg/dL.

To help patients use HbA<sub>1c</sub> levels to approximate mean glucose levels, he suggested teaching them “the rule of eights”: An HbA<sub>1c</sub> of 8% equals 180 mg/dL, and each 1% change equals ±30 mg/dL.

Pregnant patients need to understand that there is a “lag time” between an injection of insulin and a meal (N. Engl. J. Med. 2005;352:174-83), he continued. Physicians should also warn them against “insulin stacking” in which a correction dose of insulin is given before the prior dose of prandial insulin has reached its peak effect (JAMA 2003;289:2254-64).

Insulin stacking leads to hypoglycemia, he warned. “You have to remember and remind

patients about overcorrecting with too much insulin too soon before the insulin they have taken has played out.”

Dr. Gabbe said insulin levels increase during pregnancy, but the changes are different for each woman. To help the patient make adjustments, he recommended teaching her that:

- One unit of short-acting insulin will lower her blood glucose level by about 30 mg/dL.
- Ten grams of carbohydrate will elevate her blood glucose by about 30 mg/dL.
- One unit of short-acting insulin will cover about 10 g of carbohydrates.

He recommended the short-acting insulins lispro and aspart for pregnant patients; these can be injected or used with an insulin pump. He said there are concerns but not much experience with the long-acting insulin glargine in pregnancy.

Insulin pumps offer many advantages, he said. Along with eliminating the need for multiple injections, they provide a continuous basal rate, which reduces the risk of mean glucose excursions and hypoglycemia. Patients generally like the pump, because it allows a more flexible lifestyle.

The pumps have disadvantages, however. He said pumps require excellent patient compliance, along with intensive glucose monitoring, and can produce hypo- or hyperglycemia if mechanical problems occur. Pump failure increases the potential for ketoacidosis, and there is the potential for infection at the insertion site.

Expense is another issue. “It costs \$140 more per month to use a pump vs. multiple injections,” he said.

Whatever method is used, Dr. Gabbe said diet is critical as well. Patients should have three meals and three snacks each day.

Another concern is hypoglycemia unawareness, which he warned could be exacerbated by intensive insulin therapy during pregnancy. Determine whether the patient has hypoglycemia unawareness; review and adjust her diet, insulin, and exercise; and teach family members to treat hypoglycemia, Dr. Gabbe said.

“Does all of this really make a difference?” he asked rhetorically. “Yes, it does—in having a baby that grows normally and behaves normally in the nursery.”